

Creative Perception Inventory as a predictor of I.Q

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Abstract: This research examines the extent to which the level of creativity and different components of creativity: What Kind of Person Are You , Acceptance of authority, Self confidence, Inquisitiveness, Awareness of others, Disciplined Imagination among undergraduate students predict intelligence. Respondents in the research comprises of 153 from six Malaysian universities. Multiple regression analysis reveals that a total variance in intelligences accounted for by the creativity factors is 16.4 % (multiple $R^2 = 0.164$, (6, 146) = 4.761, $p = .000$). This implies that creativity is significant when considering the factors that influence the intelligence of students. [Journal of American Science 2010;6(5):1-5]. (ISSN: 1545-1003).

Keywords: Intelligence, Creativity, What Kind of Person Are You, Acceptance of authority, Self confidence, Inquisitiveness, Awareness of others, Disciplined Imagination.

1. Introduction:

We have several definitions from theoreticians and researchers for intelligence. Sternberg (1985a, 1985b) views the conceptions and definitions on the nature of intelligence and determines an underlying theme beginning at the research that mentions that intelligence is a capacity to learn from experience and to adapt to one's environment. Researcher's (Sternberg et al., 1981) refined their thoughts on intelligence to include verbal intelligence, problem solving and practical intelligence (Sternberg, 1985a). (Sternberg, 1985a) explained his first ideas by stating; "Intelligence is a mental activity directed toward purposeful adaptation to and selection and shaping of real-world environments relevant to one's life". Sternberg & Lubart (1991) cited, "the two main aspects of intelligence (the ability to define and redefine problems and the ability to think insightfully) are relevant to creativity".

Cattell (1971) suggested that intelligence comprises general ability at the top of a hierarchy, followed by fluid and crystallized abilities. Crystallized intelligence is the ability to bring previously acquired often culturally defined, problem-solving methods to bear on the current problem (Woodcock, McGrew, & Mather, 2001). Note that this implies the problem solver both knows the methods and recognizes that they are relevant in the current situation. Fluid intelligence is the ability to develop techniques for solving problems that are new and unusual, from the perspective of the problem solver (Woodcock et al., 2001). To conclude, intelligence may mean, it seems to involve the ability to learn, to solve problems, and to behave in a way that allows a person to achieve goals effectively. Intelligence in this study is a fluid intelligence.

Furnham & Bachtiar (2008) stated there are more than 60 definitions of creativity with no single authoritative and agreed upon definition, or operational measure. An easy meaning of creativity view it as generating something novel, original, an expected (Sternberg & Lubart, 1999). According to Palaniappan (2007b) creativity is some of the many intellectual constructs that has been defined as many different ways as the number of researchers

investigating them. For the purpose of this study, creativity is investigated as a personality (KTCPI as the measure), because it is new measure for assessment of creativity by this instrument. Creativity Perception refers to the perception of oneself as being creative and capable of creative productions. It is one of the most important personality traits related to creativity (Biondi, 1976; Davis, 1983).

The conception of creativity is regularly related with intelligence (Furnham & Bachtiar, 2008), but according to note's (Furnham & Bachtiar, 2008) several early researchers (Andrews, 1930; Getzels & Jackson, 1962; McCloy. W and N.C. Meier, 1931) have been shown the relation between creativity and intelligence has only modest correlations ($r = .07, .22, .26$, respectively). In a study conducted by (Olatoye & Oyundoyin, 2007) on the creativity and intelligence among 460 students were randomly selected from 20 secondary schools, it was found that intelligence quotient (as measured by Slosson's Intelligence Test) was significantly related to creativity (Ibadan Creative Assessment Scale). Their finding has been shown intelligence quotient accounted for 8% of variance in creativity ($R^2 = 0.08$). This percentage is statistically significant. According to this result also intelligence quotient significantly predicts each of the four components of creativity (fluency, originality, flexibility and creativity motivation).

Furnham & Bachtiar (2008) intelligence (as measured by the Wonderlic Personnel Test) was not correlated with any of the creativity (as measured by the Divergent Thinking , Biographical Inventory of Creative Behaviours , Self-Rating of creativity , Barron-Welsh Art Scale). Funchs & Karen (1993) studied on the creativity and intelligence in which four hundred and ninety six preschoolers of children looking admission to a special program for gifted preschoolers participated, it was found that creativity (as assessed by the Thinking Creativity in Action and Movement Scales) was significantly related to intelligence . According to Naderi, H.& Abdullah, R. (2009) studies creativity predicts intelligence, however the fact is that the value is low i.e. 13.5% (multiple $R^2 = 0.135$), ($F(7, 145) = 3.222$,

$p < 0.05$). They found no significant relation between each of the creativity components (Environmental Sensitivity, Initiative, Intellectuality, Self-strength, Individuality and Artistry) except Environmental Sensitivity).

This research was hence designed to examine the influence of creative perception inventory and the different component of creativity; What Kind of Person Are You, Acceptance of authority, Self confidence, Inquisitiveness, Awareness of others, Disciplined Imagination on intelligence among Iranian undergraduate students in Malaysian Universities. This study look for investigate the following hypotheses; creative perception inventory will not significantly predict the intelligence among students. The components of creativity will not significantly predict intelligence among the students.

2. Methodology

2.1 Sample

One hundred and fifty three Iranian undergraduate students in Malaysian Universities (31.4% females and 68.6% males) were recruited as respondents in this study. Their ages ranged from 18-27 years for females and 19-27 years for males.

2.2 Measures

Catell Culture Fair Intelligence Test

To evaluate the intelligence, every student was administered by a Scale 3 of the Catell Culture fair Intelligence Test (CFIT-3a & b). Roberto Colom, Botella, & Santacreu (2002) reported that this test is a well-known test on fluid intelligence (GF). Participants completed Cattell's culture fair intelligence test battery to assess individual differences in fluid intelligence. Cattell's Culture Fair Intelligence Test (1971), which is a nonverbal test of fluid intelligence or Spearman's general of intelligence. This test contained four individually timed subsections a) Series, b) Classification, c) Matrices, d) Typology, each with multiple-choice problems progressing in difficulty and incorporating a particular aspect of visuospatial reasoning. Raw scores on each subtest are summed together to form a composite score, which may also be converted into a standardized IQ.

Khatena-Torrance Creative Perception Inventory (KTCPI)

Every student was examined using a Khatena-Torrance Creative Perception Inventory (KTCPI) to measure the creative perception of the undergraduate students (A. K. Palaniappan, 2005). The KTCPI instrument was comprised of two subscales, namely, "Something About Myself" (SAM) and "What Kind of Person Are You" (WKOPAY)?

Creativity in this study is a What Kind Of Person Are You?. The (WKOPAY), which is a creative personality measure based on the rationale that an individual has a psychological self whose structures have incorporated both creative and noncreative ways of behaving Khatena & Torrance (1990).

The WKOPAY measure of creative perception is based on the rationale that an individual has a psychological self whose structures have incorporated both creative and noncreative ways of behaving. It covers five factors: Acceptance of Authority, Self-confidence, Inquisitiveness, Awareness of Others, and Disciplined Imagination. The Creative Perception score is the total score obtained on the 'What Kind of Person Are You?' inventory (A. K. Palaniappan, 2005; A. K. Palaniappan, 2007).

According to (A. K. Palaniappan, 2005; A. K. Palaniappan, 2007) Acceptance of Authority relates to being obedient, courteous, conforming, and accepting of the judgments of authorities; Self-confidence relates to being socially well adjusted, self-confident, energetic, curious, thorough and remembering well; Inquisitiveness relates to always asking questions, being self-assertive, feeling strong emotions, being talkative and obedient; Awareness of Others relates to being courteous, socially well-adjusted, popular or well-liked, considerate of others, and preferring to work in a group; Disciplined Imagination relates to being energetic, persistent, thorough, industrious, imaginative, adventurous, never bored, attempting difficult tasks and preferring complex tasks.

Cumulative Grade Point Average (CGPA)

For the purposes of this study, Cumulative Grade Point Average (CGPA) was used as a proxy of academic achievement. The CGPA was calculated by dividing the total number of grade points earned by the total number of credit hours attempted. A student's academic achievement was based on their mid-year examination results. Academic achievement was the aggregate or the total number of grade points in the mid-year examinations. In these examinations, each university subject was graded along a one hundred (or four) point scale, the best grade point being one hundred (or four) and the lowest being zero. Hence the aggregate would range from 75 to 100 (3 to 4); notably the lower the aggregate, the better the academic achievement. This approach was used because other researchers have used the measure and found it an acceptable one for measuring academic achievement Palaniappan (2007a) cited several researchers (Nuss, 1961; Parker, 1979; Taylor, 1958; Wilson, 1968).

2.3 Procedure

The students who participated in this study were all undergraduates. The research questions posed for the study required the students to identify and analyze the distributions and correlations of certain creativity perception were best addressed in the form of a descriptive study. Creativity levels were assessed by self-report instruments and were confirmed by consideration of the results from the administration offices of the universities (described below). They were then divided by gender, with the total scores and subscales calculated for each male and female. The participant sample, women (18-27 years) and men (19-27years), was asked to respond during the regular course time. Both written and oral instructions were given for all participants, and the subjects were ready to answer upcoming questions in the class. Multiple significance tests were conducted, and the data were analyzed by Regression analysis. Participants answered the tests either using their name or anonymously (whichever they preferred). They received no rewards for participating but were advised they would be given information of their results in the form of a self-referenced level of abilities at a later date. Scores for the intelligence, the creativity scale and its factors, were entered into the SPSS statistical program.

3. Result

3.1 Descriptive Statistics

Table.1 shows descriptive statistics on intelligence. The finding of this result shows that the mean score for intelligence was 104.55, standard deviation (15.70), while the mean scores for creativity and its components were as follows: What kind of person are you? (M=28.2745, SD= 5.03571), Disciplined Imagination (M= 4.5882, SD= 1.80471), Awareness of others (M= 5.7059, SD=1.98309), Inquisitiveness (M=2.7190, SD= 1.17237), Self confidence (M=6.0654, SD=1.88021), and Acceptance of authority (M=2.2876, SD=1.46302). However, the mean score and standard deviation for cumulative grade point average were (M= 2.96, SD.53).

3.2 Data Analysis

Hypothesis One

It states that the creativity of the subjects will not significantly predict intelligence. In Table 2, creativity significantly predicts intelligence among subjects. The total variance accounted for by the creativity factor is 16.4 % (multiple R2 = 0.16.4), F (6, 146) = 4.761, p = .000). This implies that creativity is important when considering the factors

that influence intelligence of Iranian undergraduate students in Malaysian universities.

Hypothesis Two

It states that each of the constituents of creativity of the subjects will not significantly predict intelligence. In Table 3, the multiple R2 columns reveal the total variance in intelligence accounted for by each of the creativity components of students. The highest contributing component to intelligence is Environmental Sensitivity (R2 = 0.165). This is closely followed by Intellectuality (R2 = 0.134), then, followed by Initiative (R2 =0.122), artistry (R2 = 0 .114), Individuality (R2 = 0.113) and lastly, by Self Strength (R2 = 0.090). The contribution of each of the component is different. The difference between the highest and lowest contributors is 0.156 (15.6%). each component of creativity except Environmental Sensitivity (Sig= .041). Each component of creativity except Environmental Sensitivity (Sig= .041) does not significantly predict intelligence. However, Normal P-P Plot graphs (Expected Cumulative Probability by Observed Cumulative Probability) were obtained for intelligence scores is shown in Figure 1.

Table 1. Descriptive Statistics (N=153)

	Min	Max	Mean	SD
What kind of person are you?	15	39	28.2745	5.03571
IQ	69	141	1.0455	15.70113
CGPA	1.21	4	2.9677	.53684
Disciplined Imagination	.00	8	4.5882	1.80471
Awareness of others	.00	10	5.7059	1.98309
Inquisitiveness	.00	5	2.7190	1.17237
Self confidence	1	9	6.0654	1.88021
Acceptance of authority	.00	7	2.2876	1.46302
Valid N (listwise)	153			

4. Discussion

The creativity factors predict IQ in this research. In numerous review articles and background studies the opposite is reported greatly, however is the value is low i.e. 16.4% (multiple R2 = 0.164), F (7, 145) =3.222, p<0.01). The result of this research is not in the right place. It supports the relation between intelligence and creativity found in studies conducted by (Funchs & Karen, 1993; Olatoye & Oyundoyin, 2007). They found a

significant relationship between the creativity and intelligence. Creativity is a positive predictor of Intelligence. It is advised and suggested that employers of universities and teachers would that include assignments have need for creative skills for high I.Q.

Table 2. Regression summary table showing the effect of intelligence on creativity b

	Sum of Squares	Df	Mean Square	F	Sig*
Regression	6131.7	6	1021.9	.761	.000 ^a
Residual	31340.2	146	214.659		
Total	37471.9	152			

- a. Predictors: (Constant), Creativity (What kind of person are you?), Acceptance of authority, Inquisitiveness, Self confidence, Disciplined Imagination, Awareness of others
 - b. Dependent Variable: intelligence
- * = Significant at 0.01
 Multiple R= .405
 Multiple R2 = .164
 Adjusted R2 = .129
 Standard Error of the Estimate= 14.65124

Table 3. Regression summary table showing relative effect of intelligence on each of the creativity constituents

Creativity components	R	Multiple R Square	F	Sig
Acceptance of authority	.013	.000	.026	.871
Self confidence	.048	.002	.005	.942
Inquisitiveness	.006	.000	1.228	.270
Disciplined Imagination	.317	.101	16.903	.000*
Awareness of others	.232	.054	8.628	.004*

- Significant at 0.01 level of confidence

Creativity as used in this research has five components, namely; Acceptance of authority, Self confidence, Inquisitiveness, Awareness of others, Disciplined Imagination. The relative effect of each of the creativity component considered in this investigation on intelligence indicates that their contributions are each unique. On its own, each of the creativity components (except Disciplined Imagination & Awareness of others) is not sufficient to measure the creativity of the students. This means that if a counsellor or teacher wishes to

measure creativity, using any of the components separately (except Disciplined Imagination & Awareness of others) will not be sufficient to measure a student’s creativity.

Normal P-P Plot of Regression Standardized Residual

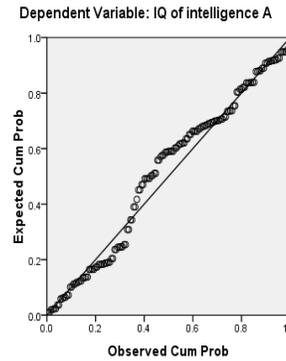


Figure 1. Normal P-P plot of Regression Standardized Residual

It supports the creativity as a predictor of intelligence among undergraduate students in study conducted by Naderi, H.& Abdullah, R. (2009) they found no significant-related between each of the creativity components (Environmental Sensitivity, Initiative, Intellectuality, Self-strength, Individuality and Artistry) except Environmental Sensitivity). However, Olatoye and Oyundoyin, (2007) found I.Q significantly predicts each of the four components of creativity (fluency, originality, flexibility and creativity motivation). Therefore, the conclusion in this study needs to be verified by conducting similar studies in other nations (Naderi et. al. 2009).

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