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Creativity and Academic Achievement of Higher Secondary School Students in Tamilnadu

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ABSTRACT: *The aim of this research is to examine if a relationship exists between creativity and academic achievement and if the relationship differs between males and females. Two research questions are analyzed in this study: (1) what is the relationship between different aspects of creativity and academic achievement? (2) Is there any significant gender differences regarding the relationship between different aspects of creativity and academic achievement? Participant (N=118; male=67 and female=51) completed creativity test. Cumulative grade point average (CGPA) was used to select the participants. Creativity was measured using the Khatena-Torrance Creative Perception (KTCPI) test. Pearson correlation analysis indicated that aspects of creativity were not related to academic achievement for both males and females. However, implications of the findings for this study in creativity and academic achievement are discussed.*

KEY WORDS: *Creativity, Academic Achievement, Gender*

I. INTRODUCTION

Is creativity related to academic achievement? Historically this has been addressed by researchers? The relationship between measures of creativity and academic achievement is significant to research, if there is a strong relation between them; it might be deduced that the creativity test has an important contribution in connection with other variables for instance the curriculum, study program, the teacher, the characteristics of the school and others in scholastic performance (Naglieri & Bornstein, 2003) In current years, several researchers have shown more interest in the relationship between creativity and academic achievement. Researchers mentioned that there are empirical evidence for a strong association between general cognitive there is still anywhere from 51% to 75% of the variance in academic achievement that is an accounted for by measures of general ability alone (Rohde & Thompson; 2007). Additionally, understanding the nature of the relationship between general cognitive ability and academic achievement has widespread implications for both practice and theory (Rohde & Thompson, 2007).

Academic achievement of students in high school strongly correlates (.50 to .70) with creativity scores (Jensen; 1998); but in another study researchers experienced hypothesis that the relationship between creativity and academic achievement was in large part associated with a mental speed component. At the beginning, the divided variance between creativity and academic achievement was nearly 30% (Luo, Thompson & Detterman, 2003). Other hand, after controlling for the mental speed components, the shared variance between creativity and academic achievement was decrease to approximately 6% (Lu et al; 2003). This result is strong shows to be true that items of creativity (such as mental speed component and may be other substances) are a significant intervener between creativity and academic achievement. In another study; (Watkins, Lei, & canivez, 2007) stated there has been considerable debate regarding the causal precedence of creativity and academic achievement. Some researchers view creativity and academic achievement as identical constructs. Others believe that the relationship between creativity and academic achievement is reciprocal. Still others assert that creativity is causally related to achievement (Laidra, Pullmann; & Allik, 2007) reported that students' achievement relies most strongly on their cognitive abilities through all grade levels.

Gender differences in creativity have been examined in adolescent and adult samples with respect to different of creativity measures. Reported some researchers (Allik, Must, & Lynn, 1999; Hattori & Lynn, 1997; Richard Lynn, 1994; R Lynn, 1998) have challenged the observations that there is findings are based on the summation of one the gender differences in several aspect of creativity. Although during the almost period of one hundred years a general agreement has been reached that there is no sex difference in overall general creativity (Douglas and Rushton; 2006) but several studies have been reported gender differences in creativity (furnham et al; 1999).

The support gender difference in specific cognitively abilities; some support females and some support males (Hyde, 2005; Lynn et al, 2002) but many of studies find no sex differences in creativity (Halpem and Lamay, 2000). Several investigators found gender differences in creativity. (Deary et al; 2003) studies also the cognitive ability distribution in 80,000 + students. There were no significant mean differences in cognitive test scores between genders but there was a highly significant difference in their standard deviations. Males were more at the low and high extremes of cognitive ability (Douglas and Ruston; 2006). Douglas and Rush ton (2006) found a point of bi-serial size of 0.12 favoring males on the SAT which provides a good measure of general creativity as manifested through school of learned abilities in high school graduating samples. Wendy and Johnson (2007) investigates 436 (188 males; 248 females) participants (ages were 18-79) from Australia, Great Britain and North America). Their result have shown that there was a very small gender difference in general mental ability but males clearly performed better on tests of verbal usage and perceptual speed. Ramstad and Ramseur (2000) have been investigated on 105 German students and concluded that male self-estimates were significantly higher for logical-mathematical and spatial creativity, while female estimates were significantly higher for musical and interpersonal creativities. Reily and mulhern (1995) estimated the creativity of 125 (45 male and 80 females) of students at Government higher secondary school using the WAIS. They found there was no gender significant difference in their measured creativity. However, men in the sample appeared to overestimates their creativity and intelligence. While the moment were quite accurate in estimating their creativity, Habibollah, et at (2008) reported there were no significance between males and females on creativity but the result shows males' means are higher than females.

The current study reported here suggested studying the relationship between creativity and academic achievement, especially to see if the Khatena-Torrance Creative perception Inventory (KTCPI). Because few researches have been done on the basis of this instrument and previous research used other instruments, so this instrument has been employed by this research. Another reason for this study is that previous research studied in certain cultures and researchers stated the need of study in different higher secondary school in Tamil Nadu state in India. So, due to the lack of research in this field on the basis of KTCPI test, in Indian population, this research addressed this issue in Tamil Nadu state students' by this test. In line with the aim of this investigate, the research questions were as follows: what is the relationship between different aspects of creativity and academic achievement? Are there any differences for females and males in terms of the relationship between different aspects of creativity and academic achievements?

II. METHODOLOGY

Sample

One hundred and eighteen higher secondary school students' from selected districts of Tamil Nadu, State of India (57% males and 43% females) were recruited as respondents in this study. Their ages ranged from 15 to 17 years for males and females.

Measures

Khatena-Torrance Creative perception Inventory (KTCPI)

Every student was examined using a Khatena – Torrance creative perception Inventory (KTCP) 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)? Creative in this study is what kind of person are you? The (WKOPAY), which is a creative personality measure based on the rational that an individual has a psychological self whose structures have incorporated both creative and noncreative ways of behaving Khatena & Torrance (190). The WKOPAY measure of creative perception is based on the rational 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, Intuitiveness, 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 self–assertive courteous, feeling strong emotions; being talkative and obedient ; awareness of others relates to being courteous; socially well-adjusted, popular or well-liked, confidence of others; and preferring to work in a group; Disciplined Imagination relates being energetic, persistent, through, industries, 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 Achievement. The CGPA was calculated by dividing 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) point scale 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 (2007) cited several researchers (Nuss; 1961; parker; 1979; Taylor, 1958; Wilson, 1968).

Procedure

The students who participated in this study were all 11^{th} and 12^{th} students. 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 (19-27 years), was asked to respond during the regular course time. Both written and oral instructions were given to 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 t-test. Participants answered the tests either using their name or anonymously (which ever 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, score for the creativity scale and its factors, were entered into the statistical program.

III. RESULT

Descriptive statistics

The data were analyzed on the basis of the relationship between creativity and academic achievement among males and females and the results are reported in the table and figure below. SPSS for windows version 16.0 was used to conduct the analysis.

Table-1 Descriptive statistics CGPA

Variables	N	Mean	Std.Deviation
CGPA	118	2.71	0.47
Male	67	3	0.46
Female	51	2.69	0.49

Table-1 Shows descriptive statistics of creativity (The A form)

The finding of this result (The A form) indicated that the females' mean score was not different from the male (males=103.31, females 103.16 but standard deviation of the males (SD=15.35) were greater than the females' standard deviation (14.35). As it is shown in the table for creativity (The B form), the males mean score (100.66) was a little more than the females mean score (98.64) for creativity. The standard deviation between females and males were not high different (17.63=females & 15.66=males). This table shows also a descriptive statistical creativity between genders total of creativity (Both A & B forms). It shows that males' mean score was higher than the females on creativity (Both A & B forms), but the standard deviations between females and males were a little different, however, we had different results about the creativity (A & B forms) scores; the males' mean scores (102.03) were more than the females' mean scores (101.06) for the generally as well as creativity (A & B forms). The standard deviations between females and males were a little different (14.09=females and males were a little different (14.09=females & 14.57=males)

Table-3 reveals that females' mean (2.89) score for cumulative grade point of average was lower than the males mean scores (3.00), but the standard deviations between females and males were not very different from each other (males 0.53 & females = 0.56).

Table-2 Descriptive Statistics Intelligence

Variables	N	Mean	Std.Deviation
creativity(The A forms)			
Total score	118	103.53	14.69
Male	67	103.62	15.34
Females	51	103.37	13.34
creativity (The B forms)			
Total score	118	98.81	14.86
Male	67	99.85	14.90
Females	51	96.53	14.68
creativity (The A & B forms)			
Total score	118	101.44	13.39
Male	67	102.04	13.56
Females	51	100.11	13.68

Table-3 Pearson correlation results

Variables	r	p	N
creativity (The A form)	.100*	.212	118
creativity (The B form)	.010*	.888	118
creativity (The A & B form)	.062*	.437	118

Dependent variable; CGPA *Correlation is not significant at the 0.05 level (2 tailed)

Table-4 Pearson correlation Results for males

Variables	r	p	N
creativity (The A form)	.88*	.372	67
creativity (The B form)	.033*	.749	67
creativity (The A&B form)	.034*	.731	67

Dependent variables; CGPA *Correlation is not significant at the 0.05 level (2 tailed)

Table-5 Pearson correlation results for females

Variables	r	p	N
creativity (The A form)	.133*	.368	51
creativity (The B form)	.074*	.619	51
creativity (The A&B form)	.109*	.461	51

Dependent variables; CGPA *Correlation is not significant at the 0.05 level (2 tailed)

IV. DATA ANALYSIS

Pearson correlation

This part presents the results from Pearson correlation of creativity and academic achievement. Variables for the males and the females, respectively, Table-3 shows the relationship between creativity with academic achievement and the difference between males and females. Analysis of the relationship between creativity e and academic achievement among students were undertaken using Pearson correlation for males and females. These correlations were not significantly related to academic achievement for (creativity the A & B forms) ($r=.101$, $P>0.05$), creativity the A & B form) ($r=0.011$, $P>0.05$), on the other hand the creativity the forms B form) were not also significantly but negatively related to academic achievement ($r = .063$, $p>0.05$).

Males: These correlation were not significantly related to academic achievement for (creativity the A & B forms) ($r=0.34$, $p>0.05$), (creativity the A form) ($r=0.88$, $p>0.05$), on the other hand, the (creativity the B form) were not also significantly but negatively related to academic achievement($r=0.32$, $p>0.05$).

Females: These correlation were not significantly related to academic achievement for creativity the A & B forms) ($r=.109$, $p>0.05$), creativity the A form $r=.133$, $p>0.05$), on the other hand, the creativity the B form were not also significantly related to academic achievement ($r=.074$, $p>0.05$).

V. DISCUSSION AND CONCLUSION:

The majority of interesting finding of this research is that when students creativity was measured by three of creativity test, the result that the existed no significantly relation between males and females regarding aspect of creativity related to academic achievement, though creativity was shown not be related to academic achievement for both genders. Hence different aspect of creativity and academic achievement doesn't matter males and females when looking at the relation between creativity and academic achievement. This could be one relation previous study yielded not decisive results respecting the relation between creativity and academic achievement. One possible interpretation for this result is that males and females which has not been excelled in different aspect of creativity. Finding from this study are consistent with those of other (Deary et al; 2003) Wendy and Johnson (2007) Mulhern (1995) Habibollah et al (2008). The present study challenges strong statements by several researcher and psychologists. Adrian and Buchanan (2005) noted that there is gender difference on creativity.

Their result been shown males give significantly and higher estimates than females for general over creativity study's Sophie et al, (2006) also revealed sex differences on the subtests of the creativity test were attributable to sex difference in general creativity. Males outperformed than females on subtests (information, arithmetic and matrix reasoning), while females performance was better than males only on digit of symbol substitution of course, this research has some limitations. One is the measure of academic achievement for this study was cumulative grade point average another limitation was the number of this study's subjects there were 118 students only to conclude this study shows that the relation between creativity and academic achievement is complex. If may vary by gender and by the creativity measure used. If could be follow up study must look at another issues that are significant for a improve understanding of creativity.

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