

## International Journal of Engineering Research & Management Technology

ICRTSHE-September-2020/ Conf. Issue/ Article No-14/49-58

Email: editor@ijermt.org www.ijermt.org

### TO STUDY THE INDIVIDUAL CONTRIBUTION OF CREATIVITY, STUDY-HABITS AND STRESS IN PREDICTING ACHIEVEMENT IN SCIENCE OF STUDENTS

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#### **ABSTRACT**

The present study was undertaken to find and study the individual contribution of Creativity, Study-Habits and stress in predicting Achievement in science of students.50 respondents were selected by using by simple random sampling technique. The data was subjected to statistical treatment by using Mean, Standard Deviation, and t-value. The result revealed that Creativity, Study-Habits and Stress are not significant predictors of Achievement in Science of students. Creativity & Study-Habits were not significant predictors of Achievement in Science of Male students. Creativity & Stress were not significant predictors of Achievement in Science of Female students rejected but there is a significant contribution of Study-Habits in predicting Achievement in Science of Female students. Creativity, study-Habits and stress in predicting Achievement in science of Students are Low. Creativity, study-Habits and stress in predicting Achievement in science of Female students is Low. Creativity, study-Habits and stress in predicting Achievement in science of Female students is Low.

Key Words Creativity, Study-Habits, stressand Achievement in science

Creativity, arguably a most important human attribute, has allowed us to evolve from a huntergathering existence to a sophisticated free-market lifestyle. Implicit in all creative efforts is the hope that we can create a better life for all species with which we share this world. As such, it seems reasonable to expect that positive feelings would generally accompany this sense of hope and that creative people would tend to be happier and show greater everyday positive affect. Satisfaction with life or subjective well-being, commonly referred to as happiness (Diener 1984), does tend to be accompanied by more positive affect and less negative affect in the individual (Ryan and Deci 2001). However, there seems to be a distinction between overall happiness and affective states. While positive affect may typically accompany happiness, positive affect alone is not normally seen as synonymous with happiness. Similarly, the presence of negative affect does not necessarily diminish one's overall sense of well-being. Yet, when one considers the Vincent Van Goghs, Virginia Woolfs, Sylvia Plaths, Ernest Hemingways, Jackson Pollocks and William Faulkners, it is difficult to conclude that creativity always goes hand in hand with a general sense of happiness or even with positive affect. Jamison (1989) observed that many artists are most prolific when they are least emotionally stable. It is possible that creative but disturbed individuals might find relief from negative affect while they are actively engaged in creative work, a negative rein-forcement contingency. Amabile et al. (2005, p. 375) noted that evidence from qualitative research and anecdotal accounts suggest that artists and scientists often report elation following a creative insight. "For example, Einstein called his 1907 general theory of relativity 'the happiest thought of my life'" (Rothenberg 1990, p. 375). Similarly, Virginia Woolf (1955) wrote, "Odd how the creative power at once brings the whole universe to order" (p. 185) Creativity, arguably a most important human attribute, has allowed us to evolve from a hunter gathering existence to a sophisticated free-market lifestyle. Implicit in all creative efforts is the hope that we can create a better life for all species with which we share this world. As such, it seems reasonable to expect that positive feelings would generally accompany this sense of hope and that

ISSN: 2348-4039

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(2010): Numerous recent research has been conducted on the subject of creativity (Charlton, 2009; Heinze, Shapira, Rogers, & Senker, 2009; Ivcevic, 2009; Miller, 2007; Runco, 2007a, 2007b; Simonton & James, 2007; Yusuf, 2009) in relation to academic achievement (Deary et al., 2007; Lau & Roeser, 2008; Noftle & Robins, 2007; Steinmayr& Spinath, 2009), creativity and academic achievement (Ai, 1999; Coyle & Pillow, 2008; Palaniappan, 2005; Palaniappan, 2007a; Steinmayr & Spinath, 2009) academic achievement and gender (Barkatsas, Kasimatis, & Gialamas, 2009; Hosenfeld, Köller, & Baumert, 1999; Penner & Paret, 2008) as well as creativity and gender (Ai, 1999; Habibollah. et al., 2008; Naderi et al., 2008; Palaniappan, 2000, 2007b). The relationship between creativity and academic achievement has been examined by a number of investigators. According to one study, creativity is hardly correlated with academic achievement (Ai, 1999). Ai (1999) noted that "the zeal to investigate the relationship between creativity and academic

achievement dates back to the 1960s, when Getzels (1962) first reported the results of their research on the role of creativity in school achievement"

#### INTRODUCTION:

Education is as old as the human race. It is never ending process of human growth and development; its period stretches from cradle to grave. Education is the most talked about subject today as it is considered to be an instrument for the development of human resources. The major aim of the modern education is all round development of child, which includes intellectual, physical, spiritual as well as social personal growth. In the modern world of technological innovations, all educational institutions are trying to improve their quality in terms of facilities and academic outputs. Education plays a significant role in everyone's life. All school subjects like- Science, Mathematics, Hindi, Social Study and English etc. are equally important for every student. But the knowledge of science is very essential in everyone's life because it is useful in our day-to-day activities, without this life cannot be imagined. The importance of Science is very much increased and its uses are indispensable in every walk of life. Scienceis essential for the existence and progress of modern world. Scienceis one of the compulsory subject of secondary education. Stress and anxiety are universal aspects of existence that are shared by individuals in all societies. They have always been and always will be an indispensable part of life. Stress is an emotional and physiological response to a stressor that triggers the sympathetic division of the autonomic nervous and endocrine system into preparation for change (Hayes 1994). Psychological stress is one of the most insidious phenomena of our time and it affects people in all walks of life. Stress implies pressure, tension of worry resulting in problems in all walks of life. Some amount of stress is necessary and is always with us. Depending on the situation in the same person or person-toperson it varies in its intensity. Stress acquires importance because of its consequences. Though, stress causes both positive and negative effects, excessive stress produces not only psychological disturbance but also several harmful effects on the bio-system. The era of competition makes students more anxious and the eagerness of whether they can pass in exams or perform well in academic activities may adversely affect the mental health of the students. Also the anxiety is considered a major cause of impaired academic performance. It should be properly addressed otherwise it can have many serious and long lasting problems such as disinterest in a particular subject or teacher, poor performance in school work and activities, absence from classes etc. Therefore, it is necessary that our students who are the future of the nation should be free from all anxieties and stresses.

#### **CREATIVITY:**

Creativity Creativity means literally, "create", "creation" or "creative force" and "power to create new works". (Anwar, H., 1381: 286). Creativity is the ability to make or bring to existence something new, whether a new solution to a problem, a new method or device or a new artistic object or form. Penick (1992) described creativity as a process of becoming sensitive to problems, deficiencies, gaps in knowledge, missing elements and disharmonies as well as identifying, searching for solutions, making guesses or formulation of hypotheses, and possibly modifying and restating them, and experimenting to find results and finally communicating the results. Nwazuoke, Olatove and Oyundovin (2002) argued that environment where a child finds himself/herself could foster or inhibit creativity. Though a child may have the innate or genetic ability for creativity, yet parents and teachers have roles to play to enhance and foster the creative traits. Dingledine (2003) asserted that family support, availability of learning materials and social pressures are some of the factors that influence the development of creativity. From these findings, it is clear that if teaching, assessment and social environment do not support creative thinking, the innate tendency in learners to be creative may be subdued. Creativity is fundamental to self-reliance although much research has been done in the field of creativity, but education experts and scholars on a common definition of creativity in science and technology have not lost.

Ai (1999) especially studied the relation between creativity and academic achievement. In this study, the students were randomly selected from 68 schools (2,264 students, 38% were boys and 62% were girls). Three creativity batteries, the Torrance Test of Creative Thinking (TTCT), the Abedi-Schumacher Creativity Test (CT), and the Villa and Auzmendi Creativity Test (VAT), were administered to the students. The academic achievement of the students' was assessed using a self-reported achievement in four subject areas English, natural science, mathematics and social science. A canonical correlation analysis found that when operationalized by their grades, creativity was related to academic achievement for both boys and girls. For girls, related to two of the academic subject areas (social science and English) and fluency related to natural science and mathematics.

#### **STUDY HABIT:**

The study habit is a very important characteristic of all human beings who are being educated and are educated. As much study habit is important for higher academic achievement of students as much is it important for their fruitful use of leisure time. It has very long reaching effects deep into the life of individuals, and by cumulative and interactive effects in the society.

Definition of Study Habit: Good (1973) Defined the term study habit as "The students way of study whether systematic, efficient, etc."

According to Patel (1976) study habit include home environment & planning of work, reading & note taking habits, planning of subjects, habits of concentration, preparation, general habits & attitudes, school environment.

According to Oxford Advanced Learner's Dictionary (2000) achievement is a thing that somebody has done successfully, especially using his/her own effort and skill.

Study habits are the ways that we study. The habits that we have formed during our school years. Study habits can be "good" which means they work and help us to make "good grades" or "bad" which just means they don't work and don't help us make good grades .(Crede & Kuncel, 2008) Study habits are "the adopted way and manner a student tplans his private readings, after classroom learning so as to attain mastery of the subject" Azikiwe, 1998) A habit is just a behavior that is repeated until it is automatic. A habit is something that is done on a scheduled, regular and planned basis. Academic achievement has been variously defined: as level of proficiency attained in academic work or as formally acquired knowledge in school subjects which is often represented by percentage of marks obtained by students in examinations Kohli (1975). Academic achievement of students refers to the knowledge attained and skills developed in the school subjects. So, academic achievement means the achievement of students in the academic subjects in relation to their knowledge attaining ability or degree of competence in school tasks usually measured by standardized tests and expressed in grades or units based on pupil's performance. Sinha (1970) explains it as "students whose academic performance is superior in character in the form of high percentage of marks are taken as successful candidates. On the other hand, students who fails in the previous examination and obtained low divisions in their examination are considered as individuals who are failed in their attainments

#### **STRESS:**

Stress is the process by which events threaten or challenge individual ability to deal adequately with the situation. Both the pleasant and unpleasant events can produce stress. The pleasant events such as marriages, planning party, joining the school or job, and the unpleasant events - family problem, examination experiencing circumstance at the work place- produce threat to our well being. Although negative events result in greater detrimental effects than positive events (Sarason et al., 1978). There certain kind of events such as death of loved one, participating in combat during a war or natural disaster and almost universally stressful. Other situation may or may not be stressful to a particular

person (Fleming, Baum & Singer, 1984, Lazarus & Cohen 19770. Actually stress is an unpleasant state of emotional and physiological arousal the people experience in situations that they perceive as danger or threatening to their well being. Some people define stress as events or situation that cause them feel tension, pressure, or negative emotions such as anxiety and anger other view stress as the response to these situations. This response includes physiological changes - such as increased heart rate and muscle tension - as well as emotional and behavioral changes.

#### **OBJECTIVES:**

- 1. To study the individual contribution of Creativity, Study-Habits and stress in predicting Achievement in science of students.
- 2. To study the individual contribution of Creativity, Study-Habits and stress in predicting Achievement in science of Male and female students separately.
- 3. To establish equation for predicting Achievement in science on the bases of Creativity, Study-Habits and stress of students.
- 4. To establish equation for predicting Achievement in science on the bases of Creativity, Study-Habits and stress of male and female students separately.

#### **HYPOTHESIS:**

- 1 There is no significant individual contribution of Creativity, Study-Habits and stress in predicting Achievement in science of students.
- 2 There is no significant the individual contribution of Creativity, Study-Habits and stress in predicting Achievement in science of Male and female students separately.

## INDIVIDUAL CONTRIBUTION OF CREATIVITY, STUDY-HABIT AND STRESS IN PREDICTING ACHIEVEMENT IN SCIENCE OF STUDENTS SPSS OUTPUT

#### Model Summary

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.279ª	.078	.041	3.39954	.078	2.130	3	76	.103

a. Predictors: (Constant), Stress, study.habits, Creativity

#### Coefficients<sup>a</sup>

		Unstandardize	d Coefficients	Standardized Coefficients			c	orrelations	
Model		В	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
1	(Constant)	20.210	4.194		4.819	.000			
	Creativity	.165	.096	.199	1.718	.090	.221	.193	.189
	study.habits	197	.133	166	-1.477	.144	204	167	163
	Stress	.024	.062	.044	.386	.701	009	.044	.043

a. Dependent Variable: Achievement.in.science

The first objective was to study the individual contribution of Creativity, Study-Habits and stress in predicting Achievement in science of students. The data were analyzed with the help of Regression Analysis and the results are given in Table-1.

Table-1: Variable-Wise individual contribution n predicting Achievement in Science of Students

Variable	Beta	% of Contribution
	Coefficient	
1. Creativity	0.199	4.3979
2. Study-Habit	166	3.3864
3. Stress	044	.0396

From Table-1, it is evident that the Beta coefficients for Creativity, Study-Habits and Stress0.199; - .166; -.044 respectively are not significant. So, it indicates that there is no significant individual contribution of Creativity, Study-Habits and Stress in predicting Achievement in Science of students. thus, the null hypothesis that there is no significant individual contribution of Creativity, Study-Habits and Stress in predicting Achievement in Science of students is not rejected. Further the individual contribution of variable in predicting Achievement in science of students is not significant(vide table-1). It may, therefore, be said that Creativity, Study-Habits and Stress are not significant predictors of Achievement in Science of students

# INDIVIDUAL CONTRIBUTION OF CREATIVITY, STUDY-HABIT AND STRESS IN PREDICTING ACHIEVEMENT IN SCIENCE OF MALE AND FEMALE STUDENTS SEPARATELY

**SPSS OUTPUT** 

#### Model Summary

						Change Statistics			
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.474ª	.225	.172	2.89284	.225	4.246	3	44	.010

a. Predictors: (Constant), Stress, study.habits, Creativity

#### Coefficientsa

		Unstandardize	d Coefficients	Standardized Coefficients			c	orrelations	
Model		В	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
1	(Constant)	16.055	4.513		3.557	.001			
	Creativity	.269	.114	.337	2.361	.023	.403	.335	.313
	study.habits	.103	.131	.105	.783	.438	.053	.117	.104
	Stress	127	.075	237	-1.678	.100	350	245	223

a. Dependent Variable: Achievement.in.science

#### Model Summary

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.753ª	.568	.521	2.69359	.568	12.254	3	28	.000

a. Predictors: (Constant), Stress, study.habits, Creativity

Coefficientsa	ı
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		Unstandardize	d Coefficients	Standardized Coefficients			С	orrelations	
Model		В	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
1	(Constant)	41.419	6.737		6.148	.000			
	Creativity	133	.126	147	-1.061	.298	.077	197	132
	study.habits	-1.137	.220	703	-5.161	.000	632	698	641
	Stress	.204	.071	.364	2.879	.008	.368	.478	.358

a. Dependent Variable: Achievement in science

The second objective was to study the individual contribution of Creativity, Study-Habits and stress in predicting Achievement in science of Male and female students separately

Table-2: Gender-Wise individual contribution in predicting Achievement in Science of Male and Female Students separately

Gender	Variable	Beta Coefficient	% of Contribution	Remarks
Male	1.Creativity	13.5811	4.3979	ns
	2.Study-Habit	0.5565	3.3864	ns
	3.Stress	8.295	.0396	p < 0.01
Female	1.Creativity	147	1.1319	ns
	2.Study-Habit	703	44.4296	p < 0.01
	3.Stress	.364	13.3952	ns

From Table-2, it is evident that the Beta coefficients for Creativity & Study-Habits are 13.5811 & 0.5565 respectively are not significant. So, it indicates that there is no significant individual contribution of Creativity & Study-Habits in predicting Achievement in Science of Male students. The table indicates that there is a significant individual contribution of Stress in predicting Achievement in Science of Male students as 8.30 is significant at 0.01 level. It indicates that there is a individual contribution of stress in predicting Achievement in Science of Male students is significant. Thus, the null hypothesis that there is no significant individual contribution of Creativity &Study-Habits is not rejected but there is a significant contribution of stress in predicting Achievement in Science of Male students.

The Table indicates that there is a significant individual contribution of stress in predicting Achievement in Science of Male students as 8.30 is significant at 0.01 level. It may, therefore, be said that Creativity& Study-Habits were not significant predictors of Achievement in Science of Male students rejected but there is a significant contribution of stress in predicting Achievement in Science of Male students.

From Table-2, it is evident that the Beta coefficients for Creativity & Stress are -.147& 0.364 respectively are not significant. So, it indicates that there is no significant individual contribution of Creativity & Stress in predicting Achievement in Science of Female students. The table indicates that there is a significant individual contribution of Study-Habits in predicting Achievement in Science of Female students as -.703 is significant at 0.01 level. It indicates that there is individual contribution of Study-Habits in predicting Achievement in Science of Female students is significant. Thus, the null hypothesis that there is no significant individual contribution of Creativity &Stress is not rejected but there is a significant contribution of Study-Habits in predicting Achievement in Science of Female students. Further the individual contribution of variable in predicting Achievement in science of Female students is not significant (vide table-2). It may, therefore, be said that Creativity &Stress were not significant predictors of Achievement in Science of Female students rejected but

there is a significant contribution of Study-Habits in predicting Achievement in Science of Female students.

### EQUATION FOR PREDICTING ACHIEVEMENT IN SCIENCE ON THE BASES OF CREATIVITY, STUDY-HABITS AND STRESS OF STUDENTS

The third objective was to establish equation for predicting Achievement in science on the bases of Creativity, Study-Habits and stress of students.

Table-3: Regression Equation for predicting Achievement in science of students

Variable	Regression Equation
Y= Achievement in science	$Y = 20.210 X_1 + .165 X_2 - 197 X_3 + .024$
$X_1$ =Creativity	Y = 20.202
$X_2 = Study-Habit$	
$X_3 = Stress$	

From Table-3, it can be seen that the Regression Equation is given which can be used for predicting Achievement in science of students provided the scores in respect of Creativity, study-Habits and stress are available for the students. The constant value of Regression Equation for predicting Achievement in science of students is 20.202. It may, therefore be said that Creativity, study-Habits and stress in predicting Achievement in science of students is Low.

## EQUATION FOR PREDICTING ACHIEVEMENT IN SCIENCE ON THE BASES OF CREATIVITY, STUDY-HABITS AND STRESS OF MALE AND FEMALE STUDENTS SEPARATELY

The fourth objective was to establish equation for predicting Achievement in science on the bases of Creativity, Study-Habits and stress of Male and Female students separately.

Table-4: Regression Equation for predicting Achievement in science of students

Gender	Variable	Regression Equation
Male	Y=Achievement in science	$Y = .269X_1 + .103X_2127 X_3 +$
	$X_1$ =Creativity	16.055
	X <sub>2</sub> =Study-Habit	Y=16.3
	$X_3 = Stress$	
Female	Y=Achievement in science	$Y =133 X_1 - 1.13 X_2 +.204$
	$X_1$ =Creativity	$X_3 + 41.419$
	X <sub>2</sub> =Study-Habit	Y=40.36
	$X_3 = Stress$	

From Table-4, it can be seen that the Regression Equation is given which can be used for predicting Achievement in science of Male students provided the scores in respect of Creativity, study-Habits and stress are available for the Male students. The constant value of Regression Equation for predicting Achievement in science of Male students is 16.3. It may, therefore be said that Creativity, study-Habits and stress in predicting Achievement in science of Male students is Low.

From Table-4, it can be seen that the Regression Equation is given which can be used for predicting Achievement in science of Female students provided the scores in respect of Creativity, study-Habits and stress are available for the Female students. The constant value of Regression Equation for predicting Achievement in science of Female students is 40.36. It may, therefore be said that Creativity, study-Habits and stress in predicting Achievement in science of Female students is Low.

#### **FINDINGS:**

- 1. Creativity, Study-Habits and Stress are not significant predictors of Achievement in Science of students.
- 2. (a) Creativity & Study-Habits were not significant predictors of Achievement in Science of Male students rejected but there is a significant contribution of stress in predicting Achievement in Science of Male students.
  - (b) Creativity & Stress were not significant predictors of Achievement in Science of Female students rejected but there is a significant contribution of Study-Habits in predicting Achievement in Science of Female students.
- 3. Creativity, study-Habits and stress in predicting Achievement in science of students are Low.
- 4. (a) Creativity, study-Habits and stress in predicting Achievement in science of Male students is Low.
- 4. (b) Creativity, study-Habits and stress in predicting Achievement in science of Female students is Low.

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