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Journal of the African Society for THE PSYCHOLOGICAL STUDY OF  
SOCIAL ISSUES % Dept. of Psychology, University of Ibadan, Nigeria.

## **TASK PERFORMANCE: EFFECTS OF MOTIVATION, AND SEX**

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### **ABSTRACT**

*The objective of this study was to investigate if students would perform better on creativity testing when exposed to extrinsic motivation, or when exposed to intrinsic motivation, and also to determine whether there was sex difference in task performance.*

*Eighty subjects, 40 males and 40 females (senior secondary students) were randomly selected. Forty (40) of the subjects were exposed to extrinsic motivation (monetary reward) while the other forty (40) were not given any reward-the intrinsic motivation group. Creativity Testing Scale was administered to subjects in each group. A 2 x 2 Analysis of Variance (ANOVA) was used to determine the effects of motivation and sex on Task Performance.*

*The findings showed that the subjects exposed to extrinsic motivation performed better than those exposed to intrinsic motivation. It was also found that there was no significant sex difference in performance. The implication of this is that when people are given tangible rewards their performance would be enhanced, also males as well as females can both perform equally on creativity.*

### **INTRODUCTION**

Until the middle of the twentieth century, Psychologists emphasis had been on reproductive rather than productive thinking, there was no clear cut distinction between creativity and intelligence (Guilford, 1967). Prominence was given to convergent process of concept attainment and problem solving than to divergent concept formation and creative production. However in the 1950s there arose a popular opinion in the United States that intelligence tests were not reflecting all aspects of cognitive abilities, this consequently led to extensive work on creativity (divergent thinking).

The concept of creativity is a very complex phenomenon, although it is commonly used in all facets of lives. Creativity is

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thinking in unusual ways, producing unusual and different uses for things, seeing things in unconventional unique ways, solving problems using unexpected but effective solutions, producing original work and responding to new situations in novel ways (Sian & Ugwuegbu, 1989). This particular definition covers a wide range of activities and it is applicable in almost all settings ranging from the classroom to places of work.

In a similar development, Papalia & Olds (1988), define creativity as the ability to see things in a new and unusual light, to see problems that no one else recognize the existence of, and to come up with new, unusual and effective solutions. These two definitions are very similar, and they identify the real essence of creativity, which is novel, effective solutions to particular problems. One cannot rule out the possibility that everybody is capable of being creative, the degree of creativity may only be different, for instance, the fact that someone cannot build a car does not mean he cannot build a chair.

## CREATIVITY AND INTELLIGENCE

For a very long time creativity was thought of as intelligence. Psychologists did not make a distinction between the two concepts, research later shows that creativity is not the same thing as intelligence. There numerous cases of people who do well in school or on the job but who exhibit "little evidence of the quality that advances rather than enhances the status quo" (Goertzel and Goertzel, 1962). This is an example of people that are intelligent but not creative. Some people barely make it out of school with very poor grades and low scores in intelligence tests, yet they constantly come up with original and novel ideas. This shows that creativity could be different from intelligence, however this is not to say that they can at times not be found in the same individual.

Mckinnon (1968) stated that beyond a particular level, higher I Qs do not predict creativity and that grades in school were not related to creativity later in life. In fact, studies have shown that there are not difference in the IQ of creative individuals

with distinguished contributions in their fields and non creative but competent practitioners. In studies carried out by Anastasi and Scafer (1971): Getzel & Jackson (1963), they found that there exist only modest correlation between intelligence and creativity both in children and adults alike.

Measuring creativity has proved a difficult task to researchers. Agreement as to how best to measure it has not been easy. Standard intelligence tests deal with the measurement of convergent thinking, ability to produce a single correct or best answer to a close ended question. A fact that makes them inadequate for the measurement of creativity which deals with divergent thinking, open ended questions that require new, original and unusual answers. However, researchers have attempted to develop several tests, asking open ended questions leaving room for multiple and alternative answer which they score based on quantity, originality, practicality and unusualness of the responses.

The reliability of these creativity tests are never in question, they have proved to be very consistent. However, establishing the validity of the tests has not been easy, there is little evidence as to whether they predict creativity in real life (Anastasi, 1976; Elliot, 1964; Taylor, Smith and Ghiselin, 1963). In the words of Amabile (1983), creativity can as well be assessed by asking people with experience in a particular field to judge creative work. Evaluations of the judges should be independent of one another, according to their own criteria rather than criteria imposed on them, assessing both technical and aesthetic aspects.

Creativity is a learn behavior and as such can be fostered through the educational system, by implication and education should result not only in students being capable of reproducing contents and ideas but also in ability to produce new and useful ideas. Guilford (1967), identified the major characteristics of creativity as originality, which can be enhanced by the kind of school an individual attends, for instance, a humanistic oriented school that gives freedom to pupils is more likely to be advantageous to creativity, than a regimented, militaristic school that is likely to hinder it.

Before creativity can be explored, optimally tapped and properly channeled, then motivation must be involved. In fact, motivation plays a role in fostering creativity, if the necessary motivational condition is present, creativity will definitely be enhanced, if not there will be hinderance.

Probably, some of the most important aspects of creativity are in the area of identifying the variables responsible for motivation towards creativity, the conditions that are conducive or detrimental to it, the types, stages and how to foster creativity.

In identifying the motivational predisposition towards creativity, Morse and Wingo (1962) proposed two opposite theories. One sees creativity as a consequence of conflict, this is derived from the Freudian theory, it talked of creativity as an outgrowth of inner conflict family conflict, personal struggle which lead to significant maladjustment. The second theory sees creativity as a product of a resolved conflict-free, mature self, the view was supported by Maslow (1950), studies of self-actualizing people, it was found that threat and fear produce rigidity whereas self confidence and freedom from threat make flexibility possible.

From the middle of the twentieth century however, there has arisen a quest to know which condition is conducive to creativity and which condition undermines it. Over the years it has been noted that some people perform better than others on the same task even amongst students in the same class, some are rated more creative depending on certain conditions. It has as well been noted that the performances of an individual change over time based on the factor that is motivating at a particular point in time.

This study is looking at motivation in the directions of intrinsic motivation which is pursuing an activity for its own sake, not to please others or to reap rewards (like money and fame), and extrinsic motivation which is engaging in an activity for the sole purpose of reaping rewards (tangible or intangible) or to please others. Specifically, to determine which of these motivational conditions will be more conducive to creativity, also to ascertain whether there exists sex differences in creativity.

The hypothesis predicts that there will be main and interaction effects of intrinsic motivation and sex on creativity while extrinsic motivation will have no effect on creativity.

## METHODOLOGY

### *Design*

The factorial design was used in this study to determine the comparative effectiveness of intrinsic and extrinsic motivation of males and females on creativity. And to also determine whether sex differences have any effect on performance in creativity task. Motivation (intrinsic and extrinsic) and sex were regarded as independent variables while creativity was regarded as dependent variable.

### *Subjects*

The sample chosen for this study was made up of eighty (80) randomly selected SS2 students in Ibadan, 40 males and 40 females. Ages of the subjects ranged from 13 to 20 years with a mean age of 15.7 and standard deviation of 1.59, while the mean age of female subjects is 15.58 with a standard deviation of 1.16.

### *Instruments*

The instrument used in this study was the "Creativity Testing" scale (constructed in the course of this study), a 10-item scale containing open-ended questions and divided into two sections. The first section taps demographic information, while the second section measures level of creativity. The scale has a split half reliability coefficient of 0.76.

### *Procedure*

The eighty randomly selected subjects were again randomly assigned to two groups, which were also randomly labelled as extrinsic and intrinsic groups respectively. At the beginning of the exercise, subjects in the experimental group (extrinsic motivation) were promised monetary reward of N20 per subject and consequently given after they had finished the exercise to determine whether extrinsic reward in terms of money would hinder or enhance creativity.

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On the other hand, subjects in the control group (intrinsic motivation) were only given instruction to participate in the exercise without the promise of any reward. The questionnaires were collected back after about 90 minutes.

### *Data Analysis*

A 2 x 2 analysis of variance (ANOVA) was used to determine the main and interaction effects of sex and motivation on creativity. A Scheffe test was also carried out to determine the direction of significance of motivation on creativity. The statistical significance was determined at .01 and .05.

### RESULT

The result of the 2 x 2 analysis of variance shows that motivation has a significant effect on creativity  $F(1, 76); = 8.59; p < .01$  (Further testing revealed the direction of significance as extrinsic motivation being significant). Sex on the other hand, has no significant effect on creativity,  $F(1, 76); = 0.27; p > .05$ . There is no significant interaction effect between sex and motivation on creativity,  $F(1, 76) = 0.18; p > .05$ . All these are represented in tables 1 and 2.

Table I: Summary table of a 2 x 2 analysis of variance showing the main and interaction effects of motivation and sex on creativity

Source	SS	DF	MS	F	P
Total	4097.2	79	-	-	
Motivation	414.06	1	414.06	8.59	< .01
Sex	12.8	1	12.8	0.29	> .05
Motivation and Sex	6.14	1	6.14	0.18	> .05
Error	3664.2	76	48.21		

Table II: The mean summary table showing the direction of effect of motivation and the effect of sex on creativity

	B1	B2	X
A1	18	16.7	17.4
A2	22	21.8	21.9
AX	20	19.3	39.3

Table two shows that extrinsic motivation (A2) has a more significant effect on creativity ( $X = 21.9$ ) than intrinsic motivation (A1) which  $X = 17.4$  on the other hand, sex (B1 and B2) has no significant effect on creativity with means of 20 and 19.3 respectively.

## DISCUSSION AND CONCLUSION

The findings of this study shows that extrinsically motivated subjects perform significantly better on creativity than intrinsically motivated subjects. This finding is an obvious contradiction of most prominent works on creativity, however, so many reasons could be responsible for this.

Although the intrinsic hypothesis states that reward is detrimental to creativity (Deci, 1975), most research on it has taken place in America and Europe, a situation that obviously did not control for the differences in socio-cultural background. The result of this study could then be as a result of differences in values, beliefs, culture and attitudes that are specific to particular areas.

Another factor that can be considered is the perceived means-end contingency between task and reward, a situation *necessary for extrinsic motivation to undermine creativity*, Kruglanski, Friedman & Sevi (1971); Lepper (1973), reported in two separate studies that only those subjects who believed they engaged in a task in order to obtain a reward showed a decrement in creativity. In other words, rewarded subjects in this study might



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not have seen the promised reward as contingent upon the task despite the instruction to that effect.

The prevalent economic situation in the country is another explanation that can be offered for the result of this study, the eagerness to earn money that is relatively hard to come by could have actually motivated the rewarded subjects to try as much as possible and dig into the reserve of their creative ability and produce work that is better in order not to miss the money promised. Whereas the non-rewarded subjects could view the task as a waste of their time which does not actually fetch them anything, in which case they just want to finish up and get away with no concern for the quality of work they produce, in other words, they felt they had nothing at stake.

One other reason that can explain why the result of this study contradicts the intrinsic motivation hypothesis is the lack of freedom of choice, although neither of the two groups was given the freedom to participate or not yet the rewarded group and something they were looking forward to in terms of the money they were promised which could be said to have motivated them better. Deci and Ryan (1984), asserted that people who are afforded a choice about whether to do a task at all might be expected to feel more self-determined and intrinsically motivated.

In all, whether the mechanism is cognitive or affective and whether it makes sense to describe this effect in terms of motivational state, the effect itself is clear, extrinsically motivated subjects performed better than intrinsically motivated subjects.

No significant difference was found in the performance of male and female subjects, this could be because both males and females in this study can be said to be equal in terms of education, intelligence and background (Randomization ensured this). In other words, creativity training programmes involving both sexes can be very productive. Females are capable of innovations as well as males, therefore no distinctions should be made in assigning creative responsibilities to males and females.

REFERENCES

- Amabile, T.M. (1983): *The Social Psychology of Creativity*. New York: Springer-Verlag.
- Anastasi, A. (1976): *Psychological Testing* (4th ed.) New York. Macmillan.
- Anastasi, A. and Scafer, C.E. (1971): Note on concept of creativity and intelligence. *Journal of Creative Behavior*, 3, 113 - 116.
- Elliot, J.M. (1964): Measuring creative abilities in public relations and advertising work. C.W. Taylor (ed.) *Widening Horizons in Creativity*. New York: Wiley.
- Getzels, J.W. and Jackson, P.W. (1963): The Highly Intelligent and Highly Creative Adolescent: A summary of some research findings. In C.W. Taylor and F. Baron (eds.) *Scientific Creativity: Its recognition and development*. New York: Wiley.
- Goertzel, V. and Goertzel, M.G. (1962). *Craddles of Eminence*. Boston: Little Brown.
- Guilford, J.P. (1967): *The Nature of Human Intelligence*. New York: McGraw-Hill.
- Kruglanski, A.W.; Friedman, I. and Zeevi, G. (1971): The Effects of Extrinsic Incentive on some Qualitative Aspects of Task Performance. *Journal of Personality*. 39, 606 - 617.
- Lepper, M.R.; Greene, D. and Misbett, R. (1973): Undermining Children's Intrinsic Interest with Extrinsic Rewards. A Test of the "Overjustification" hypothesis. *Journal of Personality and Social Psychology*, 28, 129 - 137.
- Mckinnon, D.W. (1968): Selecting Students with Creative Potentials. In P. Heist (ed.), *The Creative College Student. An Unmet Challenge*. San Francisco: Jossey-bass.
- Morse, W.C. and Wingo, G.M. (1962): *Psychology and Teaching*. 2nd Edition, University of Michigan.
- Papalia, D.E. and Olds, S.W. (1988): *Psychology*. New York McGraw-Hill.
- Siann, G. and Ugwuegbu, D.C.E. (1989): *Educational Psychology in a Changing World*. London: Unwin Hyman Ltd.