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CREATIVITY, HOME ENVIRONMENT AND INTELLIGENCE

GODWIN A. UGAL, Ph.D.
DEPARTMENT OF SOCIOLOGY
UNIVERSITY OF CALABAR

INTRODUCTION:

Creativity is a complex psychological phenomenon the nature of which psychologists have not been able to investigate completely. It has been defined in a number of different ways. Zimbardo (1979, p.52) defined it as "the occurrence of uncommon or unusual, but appropriate response." Zimbardo adds that creativity is a process that involves synthesis, the ability to make connections that relate one's observations or ideas in meaningful ways. In their own view, Sprinthall and Sprinthall (1977) point out that to be creative means to think in divergent modes, to come up with numerous novel or unique meanings, new or original thoughts, to depart or diverge from usual or conventional ideas. Maltzman (1960) defined it as originality evaluated. The nature of creative thinking particularly its property of originality and novelty is akin to the form of cognitive style which Guilford (1959) categorized as divergent thinking. Embodying the implications of most other definitions of creativity, Fontana (1981) defied the process as the ability to generate fluent and novel ways of tackling problems and of organizing materials.

The importance of home environment in nurturing the creative ability of the child has been emphasized repeatedly. Home is recognized not only as a source of promoting creative ability but also as a major source of blocking it.

For the purpose of research and study the home environment has to be seen from different dimensions. One such dimension is structural refers to the environment in which the individual is placed. The other dimension is psychological. It refers to the environmental factors as they affect the behaviour processes of the individual. In the present study structural environment has been defined in terms of the socio-economic measures which include:

- i. educational status of both the parents,
- ii. occupational states of the father, and
- iii. economic status of the family, i.e. per member family income.

Psychological home environment has been defined in terms of the perception of the individual with respect to fourteen dimensions of the home –

- i. personal freedom
- ii. critical
- iii. attitude towards child's friends
- iv. acceptance
- v. understanding
- vi. severity of discipline
- vii. emotional stability in disciplinary action
- viii. neglecting
- ix. rapport with parents
- x. rapport with siblings
- xi. socio-economic images
- xii. inter-parental relations
- xiii. parental achievement demands
- xiv. general satisfaction.

Some studies have been carried out to investigate the relationship between creativity and structural environment (Pareek, 1966; Raina, 1968, Singh, 1970; Singh, 1972; and creativity and psychological environment (Raychaudhri Ganguly, 1964; Raychaudhri, 1965; Sharma & Ssharma, 1969; for creativity and intelligence (Chadha & Sen, 1981; Jarial & Sharma, 1980; Meer & Stein, 1958). The present investigation is an attempt to study the interactive effects of structural and perceptual home environment on creativity.

METHOD

Subjects:

A total of 534 randomly selected students (281 boys and 253 girls) from six community secondary school's of Ogoja and Obudu, from JSS 1 and 2 classes. Their socio-economic level ranged from poorly defined class to a very rich stratum but mainly centering around the middle class status.

Instruments:

Torrance Test of Creative Thinking (T.T.C.T.) Verbal Form A and Figural Form A (Torrance, 1968) were administered to these

students to assess their creative ability. Structural home environment was assessed by the personal data schedule and psychological home environment by the perceptual home environment scale developed by Jawa (1976). Raven's Progresssive Matrices (1958), was used as a measure of abstract intelligence.

Procedures:

The investigation sites were usually their assembly hall, which offered privacy from the classrooms. After sampling procedures the investigator began each session by informing subjects that they would be participating in creativity and intelligence test that is, how people think and do numerous novel or unique things on their own using their original ideas and intellect. In addition to general intelligence they bring out an individual's capacity to organize material and his ability to evaluate crucial situations quickly and accurately. All the subjects were given the TTCT, personal data schedule and the Ravan's Progressive Matrices, with the assistance of a research assistant.

Scoring of Data:

The scoring procedure for the TTCT used in this study was the same as given in the Torrance Tests of Creative Thinking Direction Manual and scoring Guide (Torrance, 1966). Originality norms and some new flexibility categories were developed as suggested in the manual.

The scores were then converted to T scores in order to get the composite creativity score.

The Regression Analysis was used to find out the relationship between creativity and intelligence. The correlation coefficient 'r' for the sample was obtained.

Results:

As the sample consisted of boys and girls, sex differences in creativity were tested by using t test. The results indicate a significant difference between boys and girls-on creativity score, so further analysis were done separately for boys and girls sample.

**TABLE 1:
SEX COMPOSITION ON THE CREATIVITY SCORES**

Boys (N = 281)		Girls (N = 252)		t
Mean	SD	Mean	SD	
403.88	58.04	387.71	58.99	3.18**

**P < .01

After ascertaining the sex differences, the next issue was to see the correlation between creativity and intelligence.

The correlation coefficient 'r' for the sample was found to be 0.219 which is significantly different from zero ("t" value for r = 2.22 at 0.05 level of significance).

Using this regress line, it is possible to predict the value for creativity score for a given value of intelligence. Creativity = 22.20 + 0.216 intelligence

$$a + bx$$

**TABLE 2
RELATIONSHIP BETWEEN INTELLIGENCE AND CREATIVITY**

	Mean	SD	r
Intelligence	208.07	37.17	2.2
Creativity	207.14	37.26	

**P < .05

Using this regression line it is possible to predict the value for creativity score for a given value of intelligence. From the results on Table 2, it is clear that as the intelligence score of the child increase, the creativity score also shows a subsequent increase.

The next step was to see the correlation between creativity and home environmental factors.

The coefficient of correlation between creativity and home environmental factors ranged from .219 to 373 for boys and from .219 to 320 for girls samples respectively. All the correlation coefficients between creativity and home environmental factors were found to be statistically significant. Father's education, mother's education, father's occupation and per member family income, and perceptual home

environment explained 7.129, 7.618, 7.840, and 14.113 percent of variations in creativity for boys

sample and 4.796, 4.928, 8.180, 7.290 and 10.240 percent for girls sample, respectively.

TABLE 3
COEFFICIENT OF CORRELATION BETWEEN CREATIVITY AND HOME ENVIRONMENT FACTORS AND CONTRIBUTION OF EACH HOME ENVIRONMENTAL FACTOR TO CREATIVITY

Home-Environmental Factors	Boy r	Girls r	100r ² Percentage of variation Explained	
			Boys	Girls
			Father's Education	.267**
Mother's Education	.276**	.222**	7.618	4.928
Father's Occupation	.280**	.286**	7.840	8.180
Per member family income per month	.270**	.270**	7.290	7.290
Perceptual Home Environment	.373**	.320**	14.113	10.240

**P < .01

TABLE 4
SUMMARY OF STEP-WISE REGRESSION ANALYSES FORCED STRUCTURAL ENVIRONMENTAL FACTORS TO CREATIVITY BOYS SAMPLE (N = 281)

Step No.	FACTOR Entered or Removed	PARTIAL Regression Coefficient	MUTIPLE		INCREASE	F Value to Enter or Remove
			R	R.S.Q.		
1	Mother's Education	.144*	.29160	.08503	.08503	25.278
2	Per member family income	.209*	.34441	.11862	.03259	18.235
3	Father's Education	.163	.36135	.13058	.01196	13.517
4	Father's Occupation	.044	.36205	.13108	.0050	10.145

*P < .05

TABLE 5
SUMMARY OF STEP-WISE REGRESSION ANALYSES FORCED STRUCTURAL ENVIRONMENTAL FACTORS TO CREATIVITY GIRLS SAMPLE (N = 253)

Step No.	FACTOR Entered or Removed	PARTIAL Regression Coefficient	MUTIPLE		INCREASE	F Value to Enter or Remove
			R	R.S.Q.		
1	Father's Occupation	.172*	.28600	.08180	.08180	22.360
2	Mother's Education	.130*	.32003	.10242	.02062	14.264
3	Per member Family Income	.108	.33039	.10916	.00674	10.170
4	Father's Education	.015	.33058	.19929	.00013	7.607

*P < .05

In the next step, relationship of each socio-economic factor with creativity was studied by

controlling the rest of the socio-economic status factors.

Tables 4 and 5 indicate that when the relation of each socio-economic status factors was studied by controlling the rest of the socio-economic status factors under study, only mother's education was found to be significantly related with creativity for boys sample and father's occupation for the girls sample only.

Father's education was not found to be significantly related with creativity for both boys and girls sample. The combined contributions of structural environmental factors to creativity for boys sample and girls sample were 13.11 and 10.92 percent of variation respectively. In the case of the boys sample, out of the total contribution of the structural environmental factors, 90.49 percent of variation in creativity was explained by mother's education and per member family income. In the case of girls

sample, out of the total contribution of the structural environmental factor, 93.71 percent of variation in creativity was explained by mother's education and father's occupation.

The order of contribution of the structural environmental factors to creativity as revealed from Table 4 for boys sample was:

1. Mother's education
2. Per member family income per month
3. Father's education
4. Father's occupation

An attempt was then made to study the interaction between structural and perceptual environmental factors and their order of contribution to creativity. These results are shown in Tables 6 and 7.

TABLE 6
SUMMARY OF STEP-WISE REGRESSION ANALYSIS FORCED ALL HOME ENVIRONMENTAL FACTORS TO CREATIVITY BOYS SAMPLE (N = 281)

Step No.	FACTOR Entered or Removed	PARTIAL Regression Coefficient	MUTIPLE		INCREASE	F Value to Enter or Remove
			R	R.S.Q.		
1	Perceptual Home Environment	.373**	.373	.13913	.13913	45.09
2	Mother's Education	.231**	.438	.19184	.05991	32.98
3	Per Member Family Income per month	.0147**	.459	.21068	.01884	24.61
4	Father's Education	.062	.461	.21252	.00184	18.65
5	Father's Occupation	.031	.462	.21344	.00092	14.89

**P < .01

TABLE 7
SUMMARY OF STEP-WISE REGRESSION ANALYSIS FORCED ALL HOME ENVIRONMENTAL FACTORS TO CREATIVITY GIRLS SAMPLE (N = 253)

Step No.	FACTOR Entered or Removed	PARTIAL Regression Coefficient	MUTIPLE		INCREASE	F Value to Enter or Remove
			R	R.S.Q.		
1	Perceptual Home Environment	.320**	.302	.10240	.10240	28.63
2	Father's Occupation	.251**	.406	.16484	.06244	24.60
3	Mother's Education	.156**	.432	.18662	.02178	19.10
4	Per Member Family income per month	.101	.440	.19360	.00698	14.84
5	Father's Education	.004	.440	.19360	.0000	11.83

**P < .01

Tables 6 and 7 indicate that when the relation of each home environmental factor with creativity was studied by controlling the rest of the home environmental factors under study, perceptual home environment and mother's education were found to be significantly related to the creativity for both boys and girls sample.

Per member family income per month was found to significantly related with creativity for boys sample and father's occupation for girls sample only. The combined contribution of home environmental factors to creativity for boys sample was 21.34 percent and girls sample 19.36 percent. In the case of boys sample, out of the total contribution of home environmental factors, 98.73 percent of variation in creativity was explained by perceptual home environment, mother's education per member family income, and 65.18 percent by only perceptual home environment. Whereas in the girls sample, out of the total contribution of home environmental factors, 96.38 percent of variation in creativity was explained by perceptual home environment, mother's education and father's occupation and 52.89 percent by only perceptual home environment.

These findings clearly reveal that structural and perceptual home environmental factors interact with each other. When the effect of structural and perceptual home environmental factors to creativity was studied independently, the contribution of structural home environmental factors as compound to perceptual home environment was found to be more. And when the effect of structural home environmental factors to creativity was examined along with perceptual home environmental factor as compared to structural home environmental factors contributed more to creativity.

The order of contribution of the home environmental factors to creativity as revealed from table 6 for boys sample was:

1. Perceptual home environment
2. Mother's education
3. Per member family income per month
4. Father's education
5. Father's occupation.

The order of contribution of the home environmental factors to creativity as can be seen from Table 7 for girls sample was:

1. Perceptual home environment
2. Father's occupation
3. Mother's education

4. Per member family income per month
5. Father's education.

DISCUSSION

Creativity, as Murphy (1966) maintains, does not just happen or come about. It needs appropriate seed, soil, and climate. The results of the present investigation indicate that structural and perceptual environmental factors interact with each other and contribute to creativity. As perceptual home environmental factor was found to be most significantly related to creativity, it may be assumed that probably the structural environmental factors mediate their influence on creativity through perceptual home environment. Better structural environment also provide sample opportunities and healthy emotional climate to develop an individual's creative thinking abilities in everyday life.

Writing about the scholarship winners of National Merit Scholarship Corporation, Stalnaker (1965) pointed out that mostly they are already well fed, well trained and have the ambition and drive, characteristic of the middle class; well over 50 percent of them tend to come from the above average income group and social class.

The result of the present finding shows that as the intelligence score of the child increases, the creativity score also shows a subsequent increase. Intelligence and creativity tend to go hand in hand. This finding is supported by the reports of Jarial and Sharma (1980) and Chadha and Sen (1981), who found that creativity and intelligence are related, as seen in adolescents. Contradictory findings were reported by researchers like Wallach and Kogan (1965), Getzel and Jackson (1975) and Rawat and Agarwal (1977) who showed that high achievers in intelligence were not necessarily the high achievers in creativity.

Another interesting finding of the study was that occupation of the father has tangible relation with creativity for the girls sample. This phenomenon corroborates the results of the earlier studies conducted by Raina (1968) and Singh (1972). Miller and Swanson (1958) point out that the occupation of the father is an important factor in child rearing practices held by parents of high and low creative individuals.

The study also indicated that education of the mother as compared to that of the mother as compared to that of the father contributed more to

the development of creativity. Since child rearing in Nigeria is generally recognised as primarily the mother's prerogative and responsibility, this seems to be a valid finding. In terms of the time spent with the child, the mother has more opportunities than the father to influence the children's psychological growth and behaviour which is very important for creativity.

The results revealed too, that out of all the home environmental factors under study, perceptual home environment was found to be most significantly related with creativity for both boys and girls sample. It can be partly explained by the fact that individuals creativity is influenced not directly by its surroundings but by perceptions of its surroundings. The influence of a given situation on the individual is dependent upon what the situation means to him, that is, upon the way he perceives it. His perceptions are in part governed by the conditions of his inner environment the state of affairs pertaining to his bodily functions. They influence his feeling, attitudes and persistent beliefs which are so much part of him. Each child views and interprets each movement in the ongoing process of home activity from the only vantage point accessible to him, his own needs and background of experience. When psychological needs of the child are not satisfied, it blocks the creative development of the child and leads to unfavourable attitude towards home. However, individuals homes are difficult to approach and influence. It seems worth while to make an attempt to influence home indirectly through the school and their agencies like Parent-Teacher Associations should be encouraged and if possible, should be made compulsory.

RECOMMENDATION

In the light of the above results it is recommended that Parent-Teacher Associations (PTA), the parents should be communicated about the importance of the following:

- i. Creation of feelings of acceptance by making the child feel that he is loved and wanted.
- ii. Emotional stability and consistency in their behaviour towards children.
- iii. Creation of democratic atmosphere in the family where children feel free to express their ideas.
- iv. Freedom to take decisions independently.
- v. Recognition of achievements of the child.

- vi. Objective assessment of the child's ability and expectation achievement according to ability.
- vii. Restraining of expression of husband-wife emotional conflict in presence of the children.
- viii. Establishing better inter-sibling relations.
- ix. Acceptance of children's friends.

CONCLUSION:

It is not the socio-economic status of a person which is related to creativity, but the amenities, which the children of well-to-do economic status can get, that are related to creativity.

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