

Relationship of Creativity with Human Ecological Factors across Different Educational Boards

Shallu Rana¹, Dr. C. K Singh² & Shamli Rana³

¹Msc. Student, Department of HDFS, COHS, CCS HAU, Hisar

²Professor, Department of HDFS, CCS HAU, Hisar and ³ Msc. Student, Department of HDFS, CCSHAU, Hisar

Abstract: Creativity is the product of one's experiences, interests and imagination. It is not very easy to label the person as creative or non creative. There are complex principles governing our attitude for different aspects of life, unique set of mental abilities, personality and environment are the things which make every human being different from the other. Creativity is closely related to one's emotional characteristic and personality traits. Socially, the child is the product of environment. Two environments home and school share an influential space in individual's life and there exists a unique combination between the two. This paper examines the influence of home and school environment on creativity of adolescents. The study was conducted in Hisar city of Haryana state where five schools were selected from three educational boards i.e. HBSE, CBSE and ICSE. The two schools were selected each from CBSE and HBSE schools for selection of 100 students from each board. While 100 students were selected from one ICSE board school because of only one ICSE board school in city. The sample comprised of 300 adolescents (150 girls and 150 boys) taken equally from each board. Adolescents were assessed for their creativity by divergent production abilities scale. The creativity was highest among CBSE and ICSE board students while HBSE students had high level of originality. The study highlighted that home environment of children partially influence creativity of adolescents. School environment was found a significant factor in determining the level of creativity among adolescents.

Literature Review

Sharma (2010) conducted her study on the students of government and private schools in

Chandigarh (India). The results confirmed that both schools differ significantly in terms of creative stimulation, cognitive encouragement and permissiveness dimensions of school environment. Further study highlighted that both school and home environment contribute greatly toward the development of creativity among children. The government schools of Chandigarh provide greater creative stimulation to their students as compared to those studying in the private schools.

Alam (2009) investigated a representative sample of 400 IX standard students from two districts of Bihar. The tools used were Creativity Test by Baqer Mehdi and Socio-economic Status Scale by G.P. Srivastava. The findings revealed that a significant positive relationship exists between creativity and academic achievement, creativity and socio-economic status of students.

Tunde (2012) elucidated in his study of 210 students of upper basic secondary school revealed that 28% of the students have high level of creativity while 45% have low level of creativity. The finding supports the assertion that creativity cannot be created but be nurtured or cultivated and destroyed. The study also revealed that boys are more creative than girls.

Reddy *et al.* (2015) revealed that there is significant impact of gender, locality of residence and class of study on non verbal creativity among high school students. Further, the study concluded that boys are higher in their non verbal creativity than girls and also students belonged to urban areas secured higher as compared to students from rural areas. The study also explores that there is a positive and significant correlation between non verbal creativity and age of adolescents.

Introduction:

Urie Bronfenbrenner (1979) in his ecological systems theory advocated that there are five

different levels of our environment. Out of all these micro system is the most influential. It has closest relationship to the person, and has a profound impact on its overall development. Vygotsky (publishing year 1978) propounded in his theory of socio-cultural development that man is the product of the socio-cultural matrix, as both are interpedently affect on each other. On the contrary of Piaget's notion that children's development must necessarily precede their learning, Vygotsky proposed that learning is necessary and universal aspect of the process of developing culturally organized, specifically human psychological function (1978, p.90). Vygotsky laid emphasis on the fact that environment influences a lot on the "how" as well as "what" children thinks. Home and school are the places where children spent lot of their times.

A creative person is able to think differently and to produce noble and original ideas. It is the mental synthesis of thoughts where the person out of his previously learned experiences and applying those concepts in present situation in order to create an entirely new and unique combination with distinctive qualities. A nation's progress is greatly depends upon potentially creative minds. Creativity can also be termed as divergent production abilities in Guilford's terminology which includes: Ideational fluency, associational fluency, expressional fluency, spontaneous flexibility, originality and semantic elaboration.

Methodology:

The present study was conducted in Hisar city of Haryana state. From the Hisar city three types of schools were selected randomly i.e. the schools following CBSE, HBSE and ICSE board pattern. For ICSE board only one school was selected as there is only one ICSE board school in city. 25 girls and 25 boys of 9th and 10th class were selected from each school except ICSE board school in which 50 boys and 50 girls were selected from only one school. So, the total sample of 300 adolescents i.e. 150 girls and 150 boys. The Divergent production abilities scale developed by K.N Sharma (2010) was used to assess creative abilities. The sub aspects of divergent production abilities were word fluency, ideational fluency, associational fluency, expressional fluency, spontaneous flexibility, adaptive flexibility, originality and elaboration. For assessment of home

environment (1989) and school environment (2002), inventory of both developed by Misra were used.

Results:

Table 1 presents data on distribution of respondents for their creativity and their sub aspects on the basis of educational boards. As the table reveals that majority of CBSE students (77%) had medium level of scores in word fluency while 13 per cent were low achievers and only 10 per cent were having high level of word fluency. Similar trends were observed among HBSE students where 75 per cent had medium level of word fluency followed by 20 per cent had low levels in same aspect. The maximum percent of ICSE students (81%) had medium level of word fluency followed by 13 per cent had achieved high levels and only 6 per cent were low achievers.

In ideational fluency major percent of CBSE students (55%) had medium levels while 27 per cent had high levels and 18 per cent had low level of ideational fluency as compared to HBSE students where 56 per cent had medium level followed by 42 per cent had low levels and only 2 per cent were highly fluent in ideational fluency sub aspect of creativity.

In associational fluency the majority of students (75.3%) from total sample possessed medium level representing 79 per cent of CBSE students followed by 77 per cent of ICSE students and 70 per cent of HBSE students. Board wise comparison shows that only 1 per cent students studying in ICSE board school were low in associational fluency followed by CBSE board (8%) and HBSE board (16%)

Table 1 summarizes that more than half of the students (59%) of CBSE schools were moderately expressional followed by 14 per cent were having low level and 11 per cent had high level of expressional fluency.

Majority of respondents from all the educational boards had low scores in spontaneous flexibility. The major percent of CBSE (85%), HBSE (89%) and ICSE (80%) board students had low levels in spontaneous flexibility sub-aspect of creativity.

In terms of adaptive flexibility, originality and elaboration same trends were observed. As 83 per cent of CBSE students followed by 70 per cent of HBSE students and 63% of ICSE students were low in adaptive flexibility.

With regard to originality more percentage of CBSE students (73%) and same percentage among both HBSE (85%) and ICSE (85%) students had low level of originality. Similarly, 77 per cent of respondents from CBSE followed by 58 per cent of HBSE students performed low in elaboration. On the contrary 51 per cent of ICSE students had medium

levels in originality. Finally, in overall creativity 89.6 per cent of the total respondents had medium levels. Among respondents from CBSE board's majority of students (85%) had medium level of

overall creativity while majority (92%) of HBSE students had medium level of overall creativity and same trend was followed among ICSE board students.

Table 1: Creativity among adolescents across educational boards

| Sr. No. | Type of board | CBSE (n=100) | HBSE (n=100) | ICSE (n=100) | Total (n=300) |
|---------|--------------------------------|--------------|--------------|--------------|---------------|
| 1. | Word fluency | | | | |
| | a. Low (0-8) | 13(13.0) | 20(20.0) | 6(6.0) | 28(9.3) |
| | b. Medium(8.1-16) | 77(77.0) | 75(75.0) | 81(81.0) | 233(77.6) |
| | c. High(16.1-26) | 10(10.0) | 5(5.0) | 13(13.0) | 13(4.3) |
| 2. | Ideational fluency | | | | |
| | a. Low (0-8) | 18(18.0) | 42(42.0) | 17(17.0) | 77(25.66) |
| | b. Medium (8.1-16) | 55(55.0) | 56(56.0) | 72(72.0) | 183(61.0) |
| | c. High (16.1-26) | 27(27.0) | 2(2.0) | 11(11.0) | 40(13.3) |
| 3. | Associational fluency | | | | |
| | a. Low (0-8) | 8(8.0) | 16(16.0) | 1(1.0) | 25(8.33) |
| | b. Medium (8.1-16) | 79(79.0) | 70(70.0) | 77(77.0) | 226(75.3) |
| | c. High (16.1-26) | 13(13.0) | 13(13.0) | 21(21.0) | 47(15.6) |
| 4. | Expressional fluency | | | | |
| | a. Low (0-8) | 14(14.0) | 41(41.0) | 17(17.0) | 72(24.0) |
| | b. Medium (8.1-16) | 53(53.0) | 59(59.0) | 75(75.0) | 187(62.33) |
| | c. High (16.1-26) | 11(11.0) | - | 8(8.0) | 19(6.3) |
| 5. | Spontaneous flexibility | | | | |
| | a. Low (0-1) | 85(85.0) | 89(89.0) | 80(80.0) | 249(83.0) |
| | b. Medium (1.1-2.5) | 11(11.0) | 9(9.0) | 16(16.0) | 36(12.0) |
| | c. High (3-4) | 3(3.0) | 2(2.0) | 4(4.0) | 9(3.0) |
| 6. | Adaptive flexibility | | | | |
| | a. Low (0-1) | 83(83.0) | 70(70.0) | 63(63.0) | 216(72) |
| | b. Medium (1.1-2.5) | 5(5.0) | 21(21.0) | 35(35.0) | 68(22.6) |
| | c. High (3-4) | 12(12.0) | 9(9.0) | 2(2.0) | 16(5.3) |
| 7. | Originality | | | | |
| | a. Low(0-1) | 73(73.0) | 85(85.0) | 85(85.0) | 243(81.0) |
| | b. Medium (1.5-2.5) | 27(27.0) | 14(14.0) | 14(14.0) | 27(55.0) |
| | c. High (3-4) | - | 1(1.0) | 1(1.0) | 2(0.6) |
| 8. | Elaboration | | | | |
| | a. Low (0-1) | 77(77.0) | 58(58.0) | 34(34.0) | 169(56.3) |
| | b. Medium (1.5-2.5) | 16(16.0) | 6(6.0) | 51(51.0) | 102(34.0) |
| | c. High (3-4) | 3(3.0) | 35(35.0) | 15(15.0) | 24(8.0) |
| 9. | Overall creativity | | | | |
| | a. Low (10-33) | 4 (4.0) | 6(6.0) | - | 10(3.3) |
| | b. Medium (33.5-66) | 85 (85.0) | 92(92.0) | 92(92.0) | 269(89.6) |
| | c. High (66.5-99) | 11(11.0) | 2(2.0) | 8(8.0) | 21(7.0) |

*Figures in parentheses indicate percentage

Correlations of creativity with personal socio-economic variables of respondents

Table 1 elucidates correlation of various independent variables with aspects of creativity. Word fluency (WF) was significantly and negatively correlated with mother's occupation (r=0.20) at 0.01 level of significance, positively and significantly correlated with father's

occupation (r=0.14) at 0.05 level of significance and negatively and significantly correlated to family size (r=0.16) at 0.01 level of significance. Ideational fluency (IF) was negatively and significantly correlated with gender (r=-0.13), positively and significantly with age of respondents. Ordinal position (r=-0.20) and family size (r=-0.16) was negatively correlated with

ideational fluency while extracurricular activities were significantly correlated with ideational fluency.

Table 2: Correlation between creativity and personal socio-economic profile of respondents

| Personal socio-economic variables | Sub aspects of Creativity | | | | | | Orig. | Ela. | Overall creativity |
|-----------------------------------|---------------------------|---------|---------|---------|--------|---------|--------|--------|--------------------|
| | WF | IF | AF | Ex. F | SF | Ad. F | | | |
| Gender | -0.11 | -0.13* | -0.05 | -0.05 | 0.14* | -0.39 | 0.01 | -0.00 | -0.95 |
| Age | 0.09 | 0.12* | -0.02 | 0.02 | -0.01 | -0.02 | 0.14* | -0.05 | 0.12* |
| Caste | 0.27 | 0.10 | -0.15** | -0.03 | -0.02 | 0.57 | 0.10 | -0.10 | -0.07 |
| No. of Siblings | 0.02 | -0.92 | -0.07 | -0.02 | 0.03 | 0.18** | 0.00 | 0.04 | -0.09 |
| Ordinal position | -0.10 | -0.20** | -0.11* | -0.18** | -0.03 | 0.10 | 0.01 | 0.04 | -0.18** |
| Board | -0.77 | -0.10 | 0.12* | -0.13* | 0.06 | 0.12* | -0.10 | 0.31** | 0.01 |
| Extracurricular activities | 0.07 | 0.13* | -0.05 | 0.14* | 0.17** | -0.18** | 0.04 | -0.06 | 0.06 |
| Academic achievement | 0.07 | 0.03 | -0.10 | 0.10 | 0.06 | 0.13* | 0.13* | 0.13* | -0.03 |
| Mother education | 0.07 | -0.10 | 0.01 | -0.09 | 0.06 | 0.04 | 0.07 | -0.00 | -0.00 |
| Father education | -0.10 | 0.06 | 0.14* | 0.13* | -0.03 | 0.05 | -0.06 | 0.09 | 0.11* |
| Family income | 0.03 | 0.06 | 0.02 | 0.26** | -0.06 | -0.12* | 0.03 | 0.05 | 0.12* |
| Mother's occupation | 0.20** | 0.06 | 0.12* | 0.13* | 0.00 | 0.00 | -0.09 | 0.19** | 0.13* |
| Father's occupation | 0.14* | 0.40 | -0.06 | -0.17** | 0.05 | 0.21** | 0.15** | 0.11 | -0.11* |
| Family size | -0.16** | -0.12* | -0.44 | 0.14** | 0.10 | 0.06 | -0.06 | 0.01 | 0.00 |
| Family type | 0.00 | -0.28 | 0.07 | -0.00 | -0.02 | -0.06 | -0.06 | -0.08 | -0.02 |

*Significant at 5% level of significance

**Significant at 1% level of significance

Further, data reveals that caste ($r=-0.15$), ordinal position ($r=-0.11$) were negatively correlates of associational fluency (AF). While educational board ($r=0.12$), father's education ($r=0.14$) was significantly and positively correlated with the associational fluency. Table further explains that expressional fluency (Ex. F) was negatively and significantly correlated with ordinal position ($r=-0.18$), father's occupation ($r=-0.17$). Father's education ($r=0.14$), mother's occupation ($r=0.13$) and family size ($r=0.14$) were found to be negatively and significantly correlated with expressional fluency. Gender ($r=0.14$) and participation in extracurricular

activities ($r=0.17$) was positively and significantly correlated with spontaneous flexibility (SF).

Adaptive flexibility (Ad. F) was positively and significantly correlated with no. of siblings ($r=0.18$), educational board ($r=0.12$) and father's occupation ($r=0.21$) but negatively and significantly correlated with participation in extracurricular activities ($r=-0.18$) and family income ($r=0.12$). Sub aspect of originality (orig.) was positively correlated with age ($r=0.14$), academic achievement ($r=0.13$) as well as with

father's occupation ($r=0.15$). Educational board ($r=0.31$), academic achievement ($r=0.13$) and mother's occupation ($r=0.19$) were positive correlates of elaboration (ela). In overall creativity variables like age ($r=0.12$), father education ($r=0.11$), family income ($r=0.12$), mother's occupation was positively and significantly correlated while ordinal position ($r=0.18$) and father occupation ($r=-0.11$) were found as negative correlates.

Correlation of creativity with home environment

Table 2 reveals correlation of various aspects of home environment with sub aspects of creativity. Word fluency (WF) was found to be negatively and significantly correlated with control ($r=-0.18$) Ideational fluency (IF) was positively correlated with punishment ($r=0.13$), conformity ($r=0.17$), deprivation of privileges ($r=0.14$) and nurturance ($r=0.15$) while negatively and significantly correlated with permissiveness ($r=-0.23$). Punishment at home was positively correlated with associational fluency ($r=0.13$). Rejection ($r=-0.26$) and permissiveness were negative correlates of expressional fluency.

Further control ($r=0.11$) and conformity ($r=0.19$) were found to be negatively and significantly correlated with spontaneous flexibility (SF) while reward ($r=-0.16$) was negatively correlated with same. Significant and positive correlation was found between nurturance ($r=0.27$), rejection ($r=0.36$), permissiveness ($r=0.13$), composite home environment ($r=0.20$) and adaptive flexibility (AF).

Punishment sub aspect of home environment was found to be negatively and significantly correlated with elaboration (Ela.). Nurturance ($r=0.32$), rejection ($r=0.18$) and composite home environment ($r=0.20$) were positively correlated with elaboration. Reward ($r=0.14$) was significantly and positively correlated with overall creativity

Table3: Correlation between creativity and home environment

| Sub aspects of home environment | Sub aspects of Creativity | | | | | | Orig. | Ela. | Overall Creativity |
|---------------------------------|---------------------------|---------|-------|---------|---------|---------|--------|---------|--------------------|
| | WF | IF | AF | Ex.F | SF | Ad.F | | | |
| Control | -0.18** | -0.04 | -0.05 | 0.02 | 0.11* | 0.00 | 0.11 | 0.04 | -0.05 |
| Protectiveness | 0.08 | 0.04 | -0.09 | 0.08 | -0.03 | 0.043 | 0.11* | 0.03 | 0.06 |
| Punishment | 0.11* | 0.13* | 0.13* | -0.08 | 0.00 | -0.093 | 0.02 | -0.15** | 0.07 |
| Conformity | 0.10 | 0.17** | 0.03 | 0.01 | 0.19** | 0.038 | 0.02 | 0.04 | 0.07 |
| Social isolation | -0.04 | -0.79 | -0.00 | 0.04 | -0.00 | -0.009 | -0.09 | 0.07 | 0.03 |
| Reward | 0.08 | 0.07 | 0.05 | 0.05 | -0.16** | -0.002 | -0.00 | 0.07 | 0.14** |
| Deprivation of privileges | 0.09 | 0.14* | 0.02 | -0.09 | -0.00 | 0.073 | 0.07 | -0.06 | -0.08 |
| Nurturance | 0.10 | 0.15** | 0.05 | 0.01 | 0.08 | 0.273** | 0.27** | 0.32** | -0.05 |
| Rejection | -0.03 | 0.07 | -0.03 | -0.26** | -0.00 | 0.364** | 0.36** | 0.18** | -0.07 |
| Permissiveness | -0.08 | -0.23** | -0.06 | -0.34** | -0.08 | 0.132* | 0.13* | 0.08 | -0.09 |
| Composite home environment | 0.05 | 0.04 | 0.00 | -0.05 | 0.05 | 0.200** | 0.20** | 0.14* | 0.04 |

*Significant at 5% level of significance

**Significant at 1% level of significance

Correlation of creativity with school environment

Table 3 reveals the correlation various aspects of school environment with sub aspects of creativity. Creative stimulation ($r=0.17$), cognitive encouragement ($r=0.19$) were positively and significantly correlated with word fluency (WF). While permissiveness ($r=-0.15$) and rejection ($r=-0.16$) were negative correlates of the word fluency. Cognitive encouragement ($r=0.23$), rejection ($r=0.15$), control ($r=0.32$) and composite school environment were found to be positively correlated with ideational fluency (IF) while acceptance was found to be negatively and significantly correlated ($r=-0.15$). Further control ($r=0.15$) and cognitive encouragement were significantly and positively correlated with associational fluency (AF). Expressional fluency (Ex. F) on the other hand was positively correlated with cognitive encouragement

($r=0.24$) while negatively correlated with permissiveness (-0.14). Spontaneous flexibility (SF) was found to be negatively and significantly correlated with rejection ($r=0.12$) at school. Adaptive flexibility was found to be negatively and statistically significant correlated with rejection (-0.12). Similarly, originality (Orig.) was found to be negatively and significantly correlated with cognitive encouragement ($r=0.14$) and control ($r=0.21$). Elaboration (Ela.) sub aspect of creativity was significantly and positively correlated with cognitive encouragement (0.15). While negatively correlated with creative stimulation ($r=-0.12$), rejection ($r=0.21$) and control ($r=0.51$). Data disclosed that overall creativity was significantly and positively correlated with cognitive encouragement ($r=0.17$), permissiveness ($r=0.14$), control (0.16) and composite school environment ($r=0.15$)

Table 3: Correlation between creativity and school environment

| Sub aspects of school environment | Sub aspects of Creativity | | | | | | | | Overall Creativity |
|-----------------------------------|---------------------------|---------|--------|--------|-------|--------|---------|---------|--------------------|
| | WF | IF | AF | Ex. F | SF | Ad. F | Orig. | Ela. | |
| Creative stimulation | 0.17** | 0.06 | -0.04 | 0.13* | -0.46 | -0.47 | -0.09 | -0.12* | 0.05 |
| Cognitive encouragement | 0.19** | 0.23** | 0.13* | 0.24** | -0.52 | -0.36 | -0.14* | 0.15** | 0.17** |
| Permissiveness | -0.15** | 0.10 | 0.09 | -0.14* | -0.06 | -0.58 | -0.64 | -0.03 | 0.14* |
| Acceptance | 0.14* | -0.15** | -0.10 | -0.03 | 0.05 | -0.43 | 0.10 | 0.11 | -0.10 |
| Rejection | -0.16** | 0.15** | -0.03 | 0.11 | 0.12* | -0.12* | -0.04 | -0.21** | 0.07 |
| Control | 0.07 | 0.32** | 0.15** | -0.03 | 0.06 | 0.06 | -0.21** | -0.15** | 0.16** |
| Composite school environment | 0.08 | 0.22** | 0.02 | 0.02 | -0.00 | -0.00 | -0.10 | -0.00 | 0.15** |

*Significant at 5% level of significance

**Significant at 1% level of significance

Conclusion:

Through this research it can be concluded that both home and schools are important centres for learning of children. As Vygotsky suggested the concept of “More knowledgeable adult” and “Zone of Proximal development” it is clear that the role of teachers and parents is supreme in guiding and directing the creativity and potentialities of young minds. We should adopt the methods of teaching and learning which enhance and nurture the creativity and talents of children. In the words of the great scientist of all times about the role played by a teacher in unfolding of our hidden talents as:

It is the supreme art of the teacher to awaken joy in creative expression and knowledge.

-Albert Einstein

Acknowledgements:

This research work is a part of master’s research of author. The research work was funded by Indian Council of Agricultural research through junior research fellowship awarded for masters in human development in family studies.

References:

[1] Alam, M.M. 2009. "Effect of Creativity and Socio-economic status of students on Academic Achievement". Indian Psychological Review 72(1):35-39

[2]Bronfenbrenner, U. 1979. "The Ecology of Human Development: Experiments by Nature and Design". Cambridge, MA: Harvard University Press

[3]Guilford, J.P. 1950. American Psychologist. 5(9):444-454

[4]Misra, K.S. 1989. "Home Environment Inventory". National Psychological Corporation, Agra

[5]Misra, K.S. 2002. "School Environment Inventory", National Psychological Corporation, Agra

[6]Reddy, K. J., Viswanath, K. & Reddy, S.V. 2015. "Impact of Demographical variables on Non Verbal

Creativity Among High School Students". *The International Journal of Indian Psychology*, 2, 4. pp. 1

[7]Sharma, K.N. 2011. "Divergent Production Abilities". National Psychological Laboratory, Agra

[8]Sharma, R., 2014. "Effect of school and home environments on creativity of Children". Retrieved from web on 18th feb 2015 www.mierjs.in/ojs/index.php/mjestp/article/viewFile/53/30

[9]Vygotsky, L.S. 1978. "Mind in society: The development of higher psychological processes. Cambridge", Mass: Harvard University Press