The present study was conducted to provide information about creativity with regard to gender and residence as well as interaction between gender and resident of 9th grade students of Purulia district, West Bengal in India. Torrance Test of Creative Thinking (TTCT) standardized by Dibakar Kundu in Bengali version was adopted for measuring creativity. 244 samples were selected by stratified random sampling technique. ANOVA, t test were performed using SPSS 17 software. This study revealed that boys are more creative than girls and there is no significant difference exists between rural and urban students. Further, there is no significant interaction between gender and residence with regard to creativity.

I. INTRODUCTION

Creativity is essentially a human phenomenon. It refers to the singularly complex human capacity to produce novel ideas, generate new solutions, and express oneself in a unique manner (Runco et.al. 2010). A creative response is one that is determined to be both original and relevant (Runco and Jaeger 2012; Baron 1969). It is an ability open new ways for world to find hidden pattern, to make connections between unrelated phenomena to generate solution (Arieti, 1976). The Torrance Tests of Creative Thinking (TTCT) are one of the best...
measures of creativity (Almeida, Prieto Prieto, Ferrando, Oliveira, & Ferrandiz, 2008) and the most widely used tests to identify the creative thinking abilities of individuals. Creativity literature implies that individuals’ personal traits have some influence on creativity (Ai, 1999; Batey and Furnham, 2006). Among these personal characteristics, gender is one of the investigated targets (Kogan, 1974; Charyton, 2006). The role of gender in creativity has been explored to determine not only in terms of creative ability, but also what factors contribute to the likely differences and whether these manifest differentially over the course of the lifetime, as suggested by recent studies (Abraham, 2015; Bender et al. 2013; Cheung and Lau 2010; He and Wong 2011; Sayed and Mohamed 2013; Stoltzfus et al. 2011). According to the literature, the results are mixed (Barron and Harrington, 1981). Some studies revealed no gender difference between males and females (Baer and Kaufman, 2008, Charyton and Snelbecker, 2007, whereas others revealed that gender differences in creative performance do exist (Hoff, 2005). Abra (1991) asserted that the significance of investigating creativity depends essentially on the socio-cultural differences among both girls and boys. Socio-cultural factors (Saha, 2012) could affect girls and boys differentially, including the development of their creative capabilities. Goldsmith and Matherly (1988) gave 118 college students three self-report measures of creativity and found no gender differences. Shair (1988) try to explore creative thinking among boys and girls in relation to Socio-economic status. The result shows that Creativity and SES were positively related and no gender difference mere found to exist in creativity. Conti, Collins and Picariello (2001) found that girls were less creative in competitive situations and boys were more creative in competitive situations. Mitra Ghosh (2013) studies gender differences in creativity among School Students and found that there was a significant difference between boys and girls on creativity. Lau and Li (1996) studied 633 Chinese students in grade five in Hong Kong. Among, students, boys were viewed to be more creative than girls. Residence may play an important role in fostering creativity because of diversified experience acquired by the students. Passi (1972), Trimurthy (1987), Reddy and Rao (2003) found that urban students are more creative whereas Sharma (1971, 1974) found that rural are more creative. On the other hand, Joshi (1982), Chadrakanta (1987) found no significant difference in creativity between rural and urban participants.

With that as background, the purpose of this paper is to examine gender differences as well as residence difference in the creative thinking abilities of 9th grade students in Purulia Districts of West Bengal by addressing the following research questions: (a) Are there any differences between males and females among 9th graders in as measured by the TTCT? (b) Are there any differences between rural and urban 9th graders as measured by the TTCT? (c) Are there any significant interaction between residence and gender on Creativity?

II. HYPOTHESES OF THE STUDY

The null hypotheses for the present study are as follows:

H01: There is no significant difference between male and female students with regard to Creativity.
Ho$_2$: There is no significant difference between urban and rural students with regard to Creativity.

Ho$_3$: There is no significant interaction between gender and resident with regard to Creativity.

III. PARTICIPANTS

All 9$^{th}$ standard students of Purulia district in West Bengal, India are the population of the study. A sample of 244 students including male, female, urban and rural areas in Purulia districts were selected randomly. The samples are consisted with 120 male and 124 female of 9$^{th}$ standard students. The sample profile is given in Table 1.

<table>
<thead>
<tr>
<th></th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>57</td>
<td>63</td>
<td>120</td>
</tr>
<tr>
<td>Female</td>
<td>76</td>
<td>48</td>
<td>124</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>111</td>
<td>244</td>
</tr>
</tbody>
</table>

IV. TOOLS OF THE STUDY

This study made use of TTCT Figural, Form A. It provides scores for five subtests: (1) Fluency, (2) Originality; (3) Elaboration; (4) Abstractness of titles; and (5) Resistance to closure. This form includes three activities: picture completion, repeated figures of lines or circles, and picture construction, each of which lasts 10 min (Torrance, 1974, 1990, 1998, 2008).

V. ANALYSIS OF THE DATA

The investigation of the gender and residence differences in creativity among 9$^{th}$ grade students involved the analysis of data with the use of one-way ANOVAs (Table 2). However, in order to analysis interaction between variables, two way ANOVA (Table 2) was calculated. In addition, t critical ratios (Table 3) were also calculated. All of the above statistics are very helpful in hypotheses testing.

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (Gender)</td>
<td>989.906</td>
<td>1</td>
<td>989.906</td>
<td>9.894</td>
</tr>
<tr>
<td>B (Residence)</td>
<td>117.243</td>
<td>1</td>
<td>117.243</td>
<td>1.172</td>
</tr>
<tr>
<td>A $\times$ B</td>
<td>206.410</td>
<td>1</td>
<td>206.410</td>
<td>2.063</td>
</tr>
<tr>
<td>Within group</td>
<td>24011.811</td>
<td>240</td>
<td></td>
<td></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Pair of comparison</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>df</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>120</td>
<td>29.54</td>
<td>10.90</td>
<td>242</td>
<td>3.20*</td>
</tr>
<tr>
<td>Female</td>
<td>124</td>
<td>25.42</td>
<td>9.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>111</td>
<td>28.52</td>
<td>11.69</td>
<td>242</td>
<td>1.50**</td>
</tr>
<tr>
<td>Urban</td>
<td>133</td>
<td>26.55</td>
<td>9.01</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significance at 0.05 level, **Not significance at 0.01 level.
VI. RESULTS AND DISCUSSION

Testing of H₀₁:
The mean scores of creativity for male students is 29.54 (S.D= 10.90) and for the female is 25.42 (S.D = 9.10) respectively. F- Value (Table 2) for gender is found to be 9.894. Moreover t'-value (Table 3) between Male and Female students is to be found 3.20 which is also significant at 0.01 level of significant. In view of the above H₀₁ is rejected. It means that significant difference exists in creativity between male and female students. The study is support by the findings Ghosh Mitra (2013), Lau and Li (1966), but not with the findings of Goldsmith and Matherly (1988).

Testing of H₀₂:
The mean scores of Creativity or rural students is 28.52 (S.D= 11.69) and for urban score is 26.55 (S.D = 9.01) respectively. F- Value (Table 2) for resident is found to be 1.17 which is not significant at 0.01 levels. Moreover t'-critical ratio (Table 3) between rural and urban students is to be found 1.50 which is also not significant at 0.01 level of significant. In view of the above H₀₂ is accepted implying that creativity does not dependent on residential place. The findings of the present study corroborates with the findings of Joshi (1982), Chadrakanta (1987), but not with the finding of Sharma (1974), Passi (1971).

Testing of H₀₃:
The interaction between gender and resident of 9th standard students on the creativity is not significant as revealed by F-value which is 2.063 (Table 2). So H₀₃ is accepted.

VII. CONCLUSION

Assessing gender differences in creativity is a controversial line of research to explore. It is naïve and wrong to suggest either that one gender is more creative than another, or that there are absolutely no differences between the sexes (Pinker 2009). Present study indicates that there is significant difference between male and female student with regard to creativity and there is no significant interaction between gender and resident with regard to creativity. So we can conclude that creativity depend on gender but not depend on residence. Efforts should be done to enhance and develop creativity as well its components. Special programs for the same should be conducted.

VIII. REFERENCES

Abhijit Paul, Tapas Karmakar, Agamani Mondal, Birbal Saha:
Creativity among Secondary Students in relation to Gender and Residence


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