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## Study of creativity among boys and girls of class VIII: A review

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### Abstract

The purpose of this study was to investigate differences for boys and girls in terms of the relation between different aspects of creativity. A sample of 25 boys and 25 girls' studying in two secondary schools of Rewa city was randomly selected. The investigator had personally met the participants and administered the tool. Torrance Test of Creative thinking (Verbal Form A) designed by E.P. Torrance (1968) <sup>[1]</sup> was used. Mean S.D.S and T-test were calculated to analyse the data. The findings reveal that boys do not differ significantly in all the variables of verbal creativity, except the measures of originality from the girls.

**Keywords:** Creativity, Boys and Girls.

### Introduction

"Creativity is thinking and responding process that involves connecting with our previous experience, responding to stimuli (objects, symbols, ideas, people, and situations) and generally to at least one unique combination." Parnes (1963:5) <sup>[2]</sup>. "A nation's progress, greatness depends not only on its material achievements but also upon its great thinkers, artists and scholars that are regarded as creative genius. And in fact, historical records provide evidence that cultures have collapsed because of failure to utilise, intelligent and imagination methods for solving their problem." Torrance (1962) <sup>[3]</sup>. Guilford (1966) <sup>[4]</sup> has pointed out that, "Creativity is the key to education in its fullest sense and to the solution of mankind's most serious problems." Creativity and Sex Differences Many investigations conducted in India and abroad have revealed inconsistent results on sex differences in the test scores of creativity. Torrance (1963) <sup>[5]</sup> while investigating on sex differences in creativity of the students from first grade to fourth grade has found that boys become increasingly superior on most of the measures of creative thinking, up to third grade. By fourth grade boys begin to lose their battle against conformity to behavioural norms showing a sharp measured decrement in most of these abilities (originality and flexibility). Torrance and Aliotti (1969) <sup>[6]</sup> found that girls were better than boys on the measure of creativity. Richmond (1971) <sup>[7]</sup> has concluded that females scored higher than males. Flaherty (1992) <sup>[8]</sup> investigated on the effects of a multimodal programme on self-concept and cognitive and affective creativity on students in third grade and found that the girls in the experimental group made significant gains over the boys. In another study conducted by Boling and Boling (1993) <sup>[9]</sup> found that first born males and later born females demonstrated the greatest creativity.

With younger students prior to grade three, Kogan (1974) <sup>[10]</sup> and Tegano and Moran (1989) <sup>[11]</sup> found a tendency of girls to score higher than boys. However boys scored higher on originality in grade three. Coon (1969) <sup>[12]</sup> found higher scores for girls in early adolescence on figural creativity. Torrance (1983) <sup>[13]</sup> found that gender differences in divergent thinking ability have changed over time. In the 1950s and 1960s boys outperformed girls on measures of originality, whereas girls surpassed boys on elaboration and most measures of verbal creativity. Torrance (1962) <sup>[3]</sup>, 1965 <sup>[14]</sup> and Harold's (1968) <sup>[15]</sup> results indicated that there are significant sex differences on several creativity variables, with males being stronger than the females. Raina (1969) <sup>[16]</sup> found that boys excelled on all the figural measures of creative thinking as well as some of the verbal measures.

Nayana (1981) <sup>[17]</sup> found that males excelled females on measures of verbal flexibility, figural originality and figural elaboration. Singh (1982) <sup>[18]</sup> made an extensive study and

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found that boys achieved significantly higher mean scores than the girls on the measure of creative thinking. Lau and Li (1996)<sup>[19]</sup> also found that boys were more creative than girls. The present work is thus study of Creativity among boys and girls of Class VIII.

## 2. Methodology

**Sample:** A sample of 25 boys and 25 girls studying in two secondary schools of Rewa city was selected on random basis for the study. The sample was equal on age and socio-economic status. **Design of the study:** In the present study descriptive survey method was used. **Instrument of the study:** Torrance Test of Creative Thinking (Verbal TTCT: Thinking Creatively with Words Form A) designed by E.P. Torrance (1968)<sup>[1]</sup> was used. The test is appropriate for the kindergarten level (age 6) through the graduate level and beyond, and can be individual or group administered. It requires 30 to 45 minutes of working time. Translated into over 35 languages, the Torrance Test of Creative Thinking is a test in which anyone could respond to regardless of previous experience. This test is recommended as the best standardised measure to use because of the preponderance of evidence of reliability and validity over time and in different cultures. The TTCT is the most widely used and studied creativity tests (Treffinger, 1985<sup>[20]</sup>; Johnson and Fishkin, 1999<sup>[21]</sup>). These tests can be used not only for identifying the gifted, but also for discovering and encouraging everyday life creativity in the general population. The atmosphere in which the TTCT is administered is important. Torrance (1966)<sup>[22]</sup> recommended the creation of a light atmosphere such as thinking or problem-solving to avoid the threatening situation associated with testing. His intent was to set the tone so that examinees would enjoy the activities. Examinees should be encouraged to have fun and should experience a psychological climate that is as comfortable and stimulating as possible (Ball and Torrance, 1984)<sup>[23]</sup>. The verbal forms of the test incorporate tasks which require the use of language. The subjects are required to provide written responses to the questions put to them. The verbal activities are of the following types: Asking question type, Guess causes type, Guess Consequences type, Product-improvement type, Unusual uses type, Just suppose type.

Activity 1, Ask question consist of asking questions about the picture. Activity 2, Guess causes consist of guessing causes of the action in picture. Activity 3, Guess Consequences, consist of guessing consequences, immediate or long term, about the picture. Subjects are allowed five minutes to complete each of these activities. Activity 4, Product Improvement consists of showing an item, such as a stuffed animal, and asking for suggestions to improve it. Activity 5, Unusual Uses, consists of thinking of alternative uses for a common object, such as cardboard boxes, or tin cans. Uses of the part of the object are acceptable. Fantastic or impossible uses beyond all possible reality are not counted. Activity 6, Just Suppose Hypotheses consist of thinking about an improbable situation. For instance, suppose we could transport ourselves anywhere we want with just a twitch of the nose or blink of the eye. What would be some problems, benefits, etc. of this situation? All these activities are evaluated in terms of the creative abilities such as: *Fluency* (the ability to produce a large number of relevant ideas); *Flexibility* (the ability to produce large number of unrepeated responses, or the variety of ideas); and *Originality* (the ability to produce ideas that are unusual). To

be original, a response must be given by fewer than 5 or 10 people out of every 100 who take the test. Fluency is the number of different responses. Flexibility is generally measured by the number of different categories of responses. The Manual for Scoring and Interpreting results for the Verbal TTCT provides an easy to use scoring method for both beginners and experienced scorers. It includes national norms, standard scores and national percentiles within the grade for each score area, as well as national percentiles for average standard scores. The Verbal TTCT Norms Technical Manual includes norm tables with standard scores and national percentiles by grade and age for each score area.

Torrance (2000)<sup>[24]</sup> reported inter rater reliability of 0.95 for flexibility to 0.99 for fluency between scores of TTCT-Verbal. The test-retest reliability coefficients of the TTCT-Verbal and figural ranged from 0.59 to 0.97 (Torrance, 2000)<sup>[24]</sup>. Torrance believed that the creative thinking abilities including those measured by TTCT are susceptible to development through educational experience. In addition, emotional, physical, motivational and mental health factors also affect creative functioning and development and may contribute to a lowering of test, retest reliability. Treffinger (1985)<sup>[20]</sup> concluded that given the complexity of creative thinking the TTCT can be seen as having reasonable reliability for group and research applications. Validity of the TTCT-Verbal Predictive Validity Any creativity measurement is useless unless it has a known ability to predict performance. Preliminary studies established the validity of the TTCT and thereafter its ease of use fostered research on the TTCT. Thus the TTCT is more researched and analysed than any other creativity instrument (Treffinger, 1985<sup>[20]</sup>; Johnson and Fishkin, 1999<sup>[21]</sup>). The TTCT has over 25 years of extensive development and evaluation (Millar, 2002)<sup>[25]</sup>. TTCT has shown high predictive validity ( $r > 0.57$ ) for future career image and for academic and creative achievements.

Torrance and Safter (1989)<sup>[26]</sup> conducted a 22 year longitudinal study on the predictive validity of this measure, which compared scores from various forms of the TTCT with later life creative achievements. Torrance (1990)<sup>[27]</sup> states that the inter rater reliability among the scorers was greater than 0.90. Two decades of research establish the validity and reliability of the TTCT and demonstrate the appropriateness of including divergent measures in a multifaceted approach to assessing creativity (Kim, 2006)<sup>[28]</sup>. More than 1500 studies in 16 countries used these tests (Torrance, 1996)<sup>[29]</sup> and tests have been translated into more than 35 languages since 1966 (Millar, 2002)<sup>[25]</sup>.

Statistical studies concerning the language equivalency, reliability and validity of adapting test into Turkish have been developed by Asian (1999). Inter scorer correlation coefficient for subscales (0.95 to 1.00) demonstrated that TTCT could be implemented in Turkish culture as well (Yontar, 1992)<sup>[30]</sup>. Statistical techniques used: Mean, S.D.S. and t-test were calculated to analyse the data.

## 3. Results and discussion

The significance of the difference between the mean scores of the boys and that of the girls of Class VIII was examined for each of the four measures of verbal creativity: fluency, flexibility, originality and total creativity. As can be seen from the mean scores of the boys and the girls on the measure of fluency were found to be 37.57 and 37.32 and their corresponding S.D.S. were found to be 10.55 and 12.83

respectively. The 't' value was found to be 0.14 which is insignificant.

The result thus clearly shows that there was no significant difference between the boys and girls on the measure of fluency. On flexibility the mean score of the boys was 32.65 and of girls 31.67 while their S.D.S were 6.89 and 7.90 respectively. The difference between the two means was insignificant as the *t* value was 0.58. It may be concluded that boys and girls were similar on flexibility once again.

Comparison between boys and girls on originality shows significant difference between the two groups. The mean scores of boys and girls were 6.84 and 5.07 and S.D.S. was 8.01 and 6.32 respectively. The 't' value was 2.14 which is significant at 0.01 levels. As such, it may be concluded that boys with their significantly higher mean score possessed significantly greater originality than girls. As can be seen from on the measure of total creativity, the mean scores of boys and girls were 72.53 and 71.94 and their respective S.D.S was 21.22 and 25.52. When the 't' value was calculated to find out the significance of difference between the mean scores of the two groups, the 't' value was found to be 0.17 which is insignificant. The result thus clearly shows that there was no significant difference between the boys and the girls on the measure of total creativity.

#### 4. Conclusion

The findings reveal that boys do not differ significantly in all the variables of verbal creativity, except the measures of originality, from the girls. The results of the present study are in agreement with the findings of Torrance (1963)<sup>[5]</sup>, Razik (1962)<sup>[31]</sup>, Raina (1969)<sup>[16]</sup>, Torrance and Aliotti (1969)<sup>[6]</sup>, Richmond (1971)<sup>[7]</sup>, Singh (1982)<sup>[18]</sup>, Tegano and Moran (1989)<sup>[11]</sup>, Lau and Li (1996)<sup>[19]</sup>, who found the existence of significant sex differences between boys and girls in the test scores of creative thinking ability on which boys scored significantly higher scores than girls. However, the findings may be logically reasoned in that girls in our society have been encouraged to conform, whereas boys are expected to be active and dominant risk takers (Block, 1983)<sup>[32]</sup>. Furthermore, Davis and Rimm (1989)<sup>[33]</sup> acknowledge that most boys are provided with toys such as trucks, Logos and models that enhance their visual-spatial abilities. While Lever (1976)<sup>[34]</sup> notes that the games of girls are often highly structured requiring turn-taking and rules.

Additional studies are necessary to investigate gender differences in creativity across all grade levels. Furthermore, the impact of interventions or specialised programmes to enhance creativity needs to be integrated. At a time when there is an emphasis on the basic skills of literacy and numeric it is crucial to remind ourselves of the importance of creativity and imagination in their own right and in the contribution they make to other areas of learning. We need to resist any attempt to curtail or limit the development of creativity and imagination in the early years and beyond. If we do not ensure plenty of opportunities for learning that are first hand, that encourage children to think for themselves; to play and to take risks, we will raise a generation who, to quote Oscar Wilde, "Know the price of everything and the value of nothing" (Wilde 1969<sup>[35]</sup> *Lady Windermere's Fan*, Act III).

Through a curriculum rich in creative and imaginative opportunities young children have the opportunity to develop skills, attitudes and knowledge that will benefit all the areas of their learning and development. If our wishes for the

children are to become reality we must plan provision for young children that encourages and develops creativity and imagination. We need to find ways to promote what we value and make our beliefs real. Creativity and imagination come from the human ability to play and civilisation rests on this ability. It is essential that we foster the human capacity for creativity and play, if we do not we will be left copying old ideas. Involvement in creative and imaginative experiences should be essential for the life.

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