

Ph.D. Theses Abstracts

Divergent Thinking in Relation to Scholastic Achievement, Cognitive Style, Self-concept and Interest Pattern

ASHOK KUMAR PANDEY

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Divergent thinking is a unique power of the human mind for leading human beings to high level of intellectual functioning. Torrance defines it as problem-solving ability. A person is called creative if he has divergent types of thinking especially in the production of ideas, fluency, flexibility and originality. Creatively, the so-called divergent thinking in Guilford terminology includes fluency, flexibility, originality, elaboration and evaluative ability. Cognitive style is another aspect of cognitive process. Osofsky (1971) declared that cognitive style and creativity are less explored areas. Witking and Dyke (1970) though cognitive style as an important dimension of divergent thinking. Self-concepts one of the most dominating factors that influence an individual's behavior. Sisk (1966). Weisberg and Springer (1961), Tan (1968) and several other worked on relationship of creativity and self-concept. Interest plays a significant and crucial role in the development of divergent thinking. Dellas and Baier (1970) Holland (1962), Guilford (1957) explored this area. Achievement is a learned motive, which serves as a source of strong motivation in creative achievement. Joseph (1966) Mayhan (1966), Feldusen and Traffinger (1971) showed that achievement plays a vital role in fostering creativity.

MAIN OBJECTIVES

The main objectives of the study were :

1. To develop and standardise a test of scholastic achievement for Standard Ten in Bengali.
2. To administer the Torrance Test of Creative Thinking - Verbal and Figural (Form A and B), to measure creativity, Witkin's Embedded Figure (Form A and B) to measure creativity, Witkin's embedded Figure Test (individual) to measure cognitive style, Basu's Self-concept Scale to measure self-concept, Chatterjee's Non-language Preference Record to obtain a measure of interest pattern, and Scholastic Achievement Test for measuring the scholastic achievement of the sample under consideration.
3. To perform analysis is show how field dependents differ from field independents on the measures of divergent thinking.

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4. To determine whether the high self-concept group differs from the low self-concept group on the measures of divergent thinking.
5. To determine how high and low interest groups differ on the measures of divergent thinking.
6. To find how high achievers differ from low achievers on the measures of divergent thinking.
7. To find out the partial and multiple correlation between divergent thinking, self-concept, cognitive style, interest pattern and scholastic achievement.
8. To find out the possible determinant factors and to give them interpretation through factor analysis.

HYPOTHESES

The study had the following hypotheses:

- O H1. There is a significant relationship between divergent thinking and cognitive style.
- O H2. There is a significant relationship between divergent thinking and self-concept.
- O H3. There is a significant relationship between divergent thinking and interest pattern.
- O H4. There is a significant relationship between divergent thinking and scholastic achievement.
- O H5. Cognitive style, self-concept, interest pattern and scholastic achievement combined together are a good predictor at divergent thinking.
- O H6. There is a significant difference between groups having high or low interests on the criterion of divergent thinking.
- O H7. There is a significant difference between field dependent and field independent cognitive style of learners on the criterion of divergent thinking.
- O H8. There is a significant difference between groups having high or low self-concept on the criterion of divergent thinking.
- O H9. There is a significant difference between high and low achievers on the criterion of divergent thinking.
- O H10. There is a significant difference between boys and girls on the criterion of divergent thinking.
- O H11. There is a significant difference between urban and rural learners on the criterion of divergent thinking.
- O H12. There are unique constellations of cognitive and affective correlates of divergent thinking existing in terms of common factors in different combinations.

SAMPLE

The sample consisted of 349 learners of Class X (both boys and girls) taken from Boys', Girls' and co-educational schools from the urban and rural areas of the districts of North 24-parganas, South 24-Parganas and Nadia (West Bengal, India).

TESTS

The tests applied were:

1. Torrance Test of Creative Thinking -Verbal and Figural (Form A and B)
2. Witkin Embedded Figure Test (individual)
3. Basu' Self-concept Test (ABN).
4. Chatterjee' Non-language preference Record (CNPR).
5. A test of scholastic achievement constructed and standardised by the researcher.

STATISTICAL ANALYSIS

1. Product moment correlations were computed to study the relationship of divergent thinking (and its dimensions), cognitive style; self-concept, interest pattern and scholastic achievement.
2. Step-wise multiple regression analysis was used to identify the set of predictor variables for predicting divergent thinking.
3. Partial correlation was calculated for the prediction of divergent thinking.
4. t-test was carried out to find out the significance of differences.
5. Factor analysis was done to see the nature of factors.

FINDINGS

1. The result indicates significant relationship between divergent thinking and cognitive style, self-concept, interest pattern and scholastic achievement.
2. The partial regression coefficient ranged from .02 and 3.65, partial correlation ranged from .01 to .82 indicating that divergent thinking is perfectly correlated to other predictor variables.
3. The multiple regression analysis shows divergent thinking as the most significant variable contributing to the prediction of cognitive style, self-concept, interest pattern and scholastic achievement.
4. Sex, achievement, self-concept, interest, locality and field dependence-independence account for significant difference in their effectiveness.
5. Factor analysis showed unique constellations of cognitive and effective correlates of divergent thinking.

CONCLUSIONS

1. Significant correlation between cognitive style and different dimensions of divergent thinking shows that learners with more complex analytic cognitive structure shows greater ability of divergent thinking.
2. Significant correlation between self-concept and different dimensions of divergent thinking shows that an individual's perception of himself or herself affects his or her divergent thinking.
3. Significant correlation between interest pattern and different dimensions of divergent thinking shows that creative persons are distinguished more by interests, attitudes and drives than by intellectual abilities.
4. Significant correlation between scholastic achievement and different dimensions of divergent thinking shows that divergent production is due to high scholastic achievement.
5. Significant correlation between variables indicates high cognitive process.

6. Partial correlation R indicates that the predictor formula in the form of multiple regression solution is a better predictor of performance in divergent thinking.
7. Field-dependent were found better than field-independent in their divergent thinking.
8. Individuals with high self-concept were found better in all aspects of divergent thinking.
9. Individuals with high interest pattern had a significant contribution to his or her ability of divergent thinking.
10. Those who obtained high scores on the measures of creativity also achieved significantly better on the scholastic achievement test.
11. Male students were more creative than female students.
12. Rural learners performed better than urban learners with regard to divergent thinking.
13. The clusters of 19 variables precipitated into four distinct factors, viz. Perceptual Abilities and Divergent Thinking (Factor I), Divergent Thinking (Factor II), Self-concept and Verbal Divergent Thinking (Factor III) and Non-verbal Divergent Thinking (Factor IV). The emergence of a distinct factor of cognitive and perceptual domain (cognitive style) and personality domain (self-concept) with the dimensions of divergent thinking highlights the nature of divergent thinking.

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