

Creativity and Innovations

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Afshan. 1991. **Gifted rural and urban girls: Their vocational interests and creativity.** M.Phil., Edu. Univ. of Kashmir.

Problem: This study attempts to find out the vocational interests and creativity of gifted rural and urban girls.

Objectives: (i) To identify gifted girls in the two settings, i.e. rural and urban, (ii) to describe family background, parental education and parental occupation of the two categories of gifted girls, i.e. rural and urban, (iii) to compare the vocational-interest profiles of rural and urban gifted girls, and (iv) to compare rural and urban gifted girls on flexibility, fluency, originality and total creativity scores.

Methodology: The sample of the study comprised 835 girls students of Grade XI from different higher secondary schools of Srinagar and Baramullah Districts. Out of the total sample, 410 girls were from rural and 425 girls were from urban background. The tools used included Information Blank Sheet, Non-language Preference Schedule by Chatterji, Verbal Test of Creative Thinking by Baqer Mehdi, and Progressive Matrices by Raven. Mean, SD, 't' values and percentages were used for the analysis of data.

Major Findings: (1) Rural and urban gifted girls did not show any characteristic difference in parental education or occupation. (2) Rural

gifted girls in comparison to urban gifted girls were found to be higher on creativity but difference between the mean scores could not reach any level of significance. No significant difference was found between these two groups on the components of creativity, viz. fluency, flexibility and originality. (3) The vocational interests of gifted rural and urban girls were more or less similar when compared on a one-to-one basis. [AGM 1859]

Agarwal, Kanta Prasad. 1988. **Types of schools and corresponding factors as predictors of creativity at secondary level.** Ph.D., Edu. Jamia Millia Islamia.

Problem: This study concentrates on types of schools and corresponding factors as predictors of creativity at secondary level.

Objectives: (i) To find and compare Grade XI students of four types of schools, namely, aided schools, government schools, Kendriya Vidyalayas and public schools in respect of their (a) verbal creativity and its components, (b) non-verbal creativity and its components, and (c) total creativity, (ii) to determine and compare the classroom learning environment of four types of schools, (iii) to compare high and low creatives of the four types of schools in respect of sixteen components of classroom learning environment, (iv) to find out the relationship among different components of classroom learning environment

and total creativity, (v) to examine the predictive effectiveness of different components of classroom learning environment in respect of creativity, (vi) to compare the teacher's perception of the ideal pupil in four types of schools, (vii) to identify the relationship between teacher's perception of the ideal pupil and total creativity, (viii) to compare the students in respect of their socio-economic status, and (ix) to identify school-type-wise and total sample-wise relationship between the socio-economic status of the students and their creativity.

Methodology: The sample comprised 480 male science students of Class XI from four types of schools, namely, aided schools, government schools, Kendriya Vidyalayas, and public schools, apart from 275 teachers. The tools used were Verbal and Non-verbal Tests of Creativity, Learning Environment Inventory, and Socio-economic Status Scale. Mean, SD, F-ratio, 't' test, chi-square and multiple regression analysis were used for the purpose of analysis of data.

Major Findings: (1) Significant differences were found among Grade XI students of the four types of schools in respect of total creativity, and verbal and non-verbal creativity and their components. (2) No substantial differences were found in the learning environment of four types of schools. (3) Significant differences on some learning environment was found among high and low creatives. (4) Verbal creativity was related only with one learning dimension, namely, material-environment in aided schools; with two dimensions, friction and innovation, in government schools; with competitiveness in Kendriya Vidyalayas; with cohesiveness, friction, goal-direction, favouritism and competitiveness in public schools; and with friction, difficulty, competitiveness and innovation in the total sample. (5) Negative relationship was found between verbal creativity and learning environment dimensions. (6) Few learning environment dimensions could predict creativity and its components. (7) The predictive effectiveness of significance found learning

environment components varied in degree from school to school. (8) A high degree of association was found between the ranking and perceptions of teachers from different schools about the characteristics of an ideal pupil. (9) Very low association was found between the perceptions of teachers and the creative experts of personality. (10) The students of the four types of schools differed in respect of their socio-economic status. (11) Socio-economic status influenced creativity and its three types, namely, verbal ability (A), verbal creativity (B), and non-verbal creativity significantly in aided schools and in the total sample. However, neither creativity nor its types were found to be influenced significantly by socio-economic status in the remaining three schools, namely, government schools, Kendriya Vidyalayas, and public schools. (12) Socio-economic status influenced creativity and its components to a moderate degree only. [SPR 0595]

Badola, Sunita. 1991. **Locus of control, achievement-motivation and anxiety as correlates of creativity.** Ph.D., Edu. Hemwati Nandan Bahuguna Garhwal Univ.

Problem: The study is conducted keeping in view locus of control, achievement-motivation, and anxiety as correlates of creativity.

Objectives: (i) To explore the relationship between creativity and locus of control, between creativity and achievement-motivation, and between creativity and anxiety of students, and (ii) to find out as to how far high and low creative students differ in respect of locus of control, achievement-motivation and anxiety.

Methodology: Students of Classes XI and XII of the higher secondary schools of Garhwal region formed the sample of the study. The tools used included: Verbal Test of Creative Thinking by Baqer Mehdi, Rotter's Locus of Control adapted by Kumar and Srivastava in Hindi, Achievement Motive Test by Bhargava, and Sinha's Comprehensive Test of Anxiety developed by Sinha and Sinha.

Major Findings: (1) Creativity and locus of control were positively related with each other in the case of general students, (2) There was no significant relationship between creativity and achievement-motivation in respect of creative students in general, (3) There was a positive and significant relationship between high creativity and anxiety in respect of total creative students. [KBB 1840]

Bal, Sudesh. 1989. **Alpha II biographical inventory as a predictor of the creative personality of university students.** *Indian Educational Review*, Vol. 24 (2): 1-13.

Problem: The purpose of this investigation is to estimate the extent to which personality factors on Cattell's 16 PF identified by past research can predict creativity identified by All BI.

Objectives: (i) To study the personality factors on Cattell's 16 PF identified by past research, and (ii) to study if the personality factors identified can predict creativity identified by All BI.

Methodology: The sample comprised 13 first-year undergraduates from the University of Utah, USA. The tools used included: All BI and Cattell's 16 Personality Factors questionnaire. Mean and SD of All BI creativity scores of the sample were computed, and step-wise multiple regression used.

Major Findings: (1) All BI creativity scores were significantly correlated to personality factors E, H, Q₁ and M. (2) Factors E, M, H and Q₄, Q₃, Q₂ correlated well beyond the chance level of significance with creativity on All BI. These are, as a matter of fact, functional correlates of creativity. [SPr 1427]

Bhandarkar, S. 1989. **An experimental study of intellectual and creative suppression/stagnation of meritorious students in the present curriculum.** Ph.D., Edu. Nagpur Univ.

Problem: The researcher has conducted an experimental study to find out the intellectual

and creative suppression/stagnation being faced by meritorious students of Standards VIII and IX, in the present curriculum.

Objective: To remove the suppression/stagnation being faced by meritorious students in the present curriculum by implementing innovative co-curricular activities.

Methodology: The sample consisted of 140 students of Standards VIII and IX from fifteen secondary schools of Chandrapur District. The tools used included IQ Test by Madhukar Patel, Creativity Test by Torrance, Scholastic and Creativity Suppression Measuring Scale prepared by the researcher, and the Merit Enhancing Programme including 13 various experiences. Mean, SD, 't' test, coefficient of correlation, critical ratio, and others were used for the analysis of the data.

Major Findings: (1) There was very little difference in the highest and the lowest mean of the suppression expressed by the students. (2) The high-level group showed more suppression than the low-level group. (3) School was found to be the most suppressing factor, and the environment and literature were the factors causing least suppression. (4) It was found that 'family' was more of a suppressing factor than a 'friend' factor. [GPK 1630]

Biswas, Pares Chandra and Biswas, Sukla. 1991. **Reactions to frustration of creative and non-creative school-going adolescents.** *Indian Educational Review*, Vol.26 (1): 56-63.

Problem: The present study attempts to assess how the creative and the non-creative rural adolescents differ in their reactions to frustration, such as directions of aggression and types of reaction and group conformity rating (GCR), as conceptualised by Rosensweig (1944).

Objective: To find out up to what extent the creative and non-creative Grade IX rural adolescents differ in the directions of aggression and types of reaction and GCR, assessed through a semi-projective test.

Methodology: The sample consisted of 170 students (101 boys and 69 girls) of Grade IX, belonging to two districts, Nadia and Murshidabad, in West Bengal. The tools used were Sarkar Creativity Test (SCT) and Reactions to Frustration Test (RFT), developed in Bengali by Pares Chandra Biswas. Mean, SD and 't' values were used for the analysis of data.

Major Findings: (1) The two groups differed significantly only in Extragression (E-A) and Group Conformity Rating (GCR). The creative group was found to be less extraggressive than the non-creative group, while the former group had a higher GCR mean than the latter. (2) The creatives were found to be more adjusted to the normal group as evidenced by their significantly higher mean scores in GCR than the non-creatives. (3) The mean scores of the two groups in Intragression (I-A) did not differ significantly. (4) The creative group had higher mean score in aggression (M-A) than the non-creative group. [SPr 1880]

Buno, Liegise. 1989. **A critical review of some research studies on creativity in Indian schools.** M.Phil., Edu. Univ. of Delhi.

Problem: This study presents a critical review of the present status of researches being done in the field of creativity in Indian schools.

Objectives: (i) To conceptualise different aspects of creativity, (ii) to classify available research studies under the four 'P' approach, (iii) to review research studies done in the area of creativity, and (iv) to make a critique of these studies to arrive at a general study.

Methodology: Seven libraries of Delhi were scanned for studying Ph.D. and M.Phil. dissertations completed in some Indian universities during 1975-88. Percentage, and frequencies were used for the purpose of document analysis.

Major Findings: (1) The study indicated a great diversity of areas of research, like personality

profile and environment/press. (2) The sub-area classification of studies was related to product, process, person, and press environment. (3) Another classification of completed studies was related to the nature of sample from upper primary, secondary and senior secondary schools. Most of the studies were in the area of secondary schools. (4) The measurement tools used in the studies were Creativity Tests, Intelligence Tests, Personality Tests, SES Scale and Environment, Academic Achievement, Adjustment Inventory, Motivation Scale and others. (5) The least attended area was the process approach. (6) There were not many studies on the creative product approach. (7) A substantive number of studies have been conducted on finding out the nature and characteristics of the creative child and the influences thereon. (8) Most of the studies focused on only one manifested area of giftedness, i.e., intellectual ability/creativity, whereas areas of social leadership, constructive skills and creativity in the performing arts were hardly touched upon. (9) Most of the studies were relational. Case studies were rare. (10) Longitudinal studies/developmental studies were also rare. [RDM 0359]

Datta, K.L. 1989. **Differences in scientific creativity among high school students.** Ph.D., Edu. Univ. of Jammu.

Problem: The study tries to find out the differences in scientific creativity among high school students.

Objectives: (i) To study the main effects of sex and school on the differences in the scientific creativity of high school students, (ii) to study the relationship between intelligence, academic achievement, socio-economic status, and scientific creativity scores, and (iii) to study the dominant factors in scientific creativity.

Methodology: The sample comprised 500 high school students selected from four districts of Jammu province. The tools used were Scientific

Creativity Test, Group Verbal Test of Intelligence by Joshi, Socio-economic Status Scale Questionnaire by S. Jalota et al., and aggregate marks secured in previous examinations.

Major Findings: (1) The constructed test of scientific creativity proved to be reliable and valid. (2) Sex differences did exist in scientific creativity. (3) Scientific creativity was a normally distributed trait. (4) Scientific creativity depended on intelligence, academic achievement, and socio-economic status. (5) Dominant factors of scientific creativity were fluency, flexibility and originality in the case of boys and girls. (6) Fluency and flexibility as factors of creativity depended upon intelligence but were independent of academic achievement and socio-economic status. (7) In both the sexes, scientific creativity was found to be independent of SES but dependent upon intelligence. [SPS 1279]

Dhalla, Tripti. 1990. **A psycho-educational profile of creative children.** M.Phil., Edu. Univ. of Delhi.

Problem: The present study tries to find a profile of creative children in the area of psychology and education. It also attempts to find some commonality among creative children.

Objectives: (i) To identify five creative children, (ii) To validate the information and to see how others perceive them, (iii) To explore the world of creative children from the point of view of fourteen characteristics, and (iv) to develop a questionnaire for understanding a comprehensive profile of selected creative individuals.

Methodology: Five students (two from Class VII and three from Class VIII) of national public schools formed the sample of the study. The tools used were Test of Creativity by Baqer Mehdi, Raven's Standard Progressive Matrices, Attitude Scale towards School, Home, Self, Attitude of Parents towards Children, and Teachers' Perception. Frequencies and percentages were used for the purpose of analysis of data.

Major Findings: (1) Creative individuals were: (a) above the 90th percentile in 'originality' and at 99th percentile in 'elaboration', (b) high in intellectual capacity, and (c) 'fluent' and high achievers. (2) Creative individuals did not have good reading habits. (3) Creative individuals were confident about their future aspirations. (4) Usually, they did not have leadership qualities but possessed some special talents. (5) They did not perceive themselves as popular in the classroom but were happy about the world around. (6) They had positive high 'self-concept' and were very optimistic about life. (7) Parents of creative children had a democratic style. (8) They were quick, attentive and disciplined. [RDM 0363]

Gakhar, Sudesh. 1991. **Interaction of structures in instructional material with creative training.** Independent study. Panjab Univ. [ERIC Funded]

Problem: Research on creativity in India has been primarily theoretical in nature. Until recently, there has been relatively little research on nurturing creative thinking. In regular classes by regular teachers, we should introduce some type of training which nurtures creativity. In order to nurture creative talent there is need to provide students with extensive systematic instruction in the skills required for original, independent thinking, and problem-solving. Reinforcing both the quality and the quantity of responses of divergent thinking tasks can be fulfilled by schools. It provides enough scope for using the description of the creative thought process in teaching methodology. Instructions for creating awareness of the mechanisms must be worked upon to arrive at novel solutions. The present project is an attempt to train for creativity.

Objectives: (i) To develop and standardise instructional materials for stimulating creative processes, and thereby creative responses; and (ii) to examine the efficiency of creative training techniques on creative responses in terms of fluency, flexibility, originality, total creativity, and

also on academic achievement as measured through science tests.

Methodology: The sample comprised 575 Grade IX students of six schools of Chandigarh. The tools used were Group Test of General Mental Ability by Jalota, Creativity Test by Baqer Mehdi, Achievement Test on 'chemical action' by Ahuja, Future Problem-solving Programme by E.P. Torrance, Socio-economic Status Scale Questionnaire by Jalota, Instructional Material, and five units of lessons on Chemical Action prepared and validated by the investigator. ANOVA was used for data analysis.

Major Findings: (1) The F-ratio for the difference in means of the corrected scores of the four instructional methods was found to be significant. This suggests that the four groups may not be considered equal on their average achievement scores. (2) All the instructional methods (Ausubel's Model, Bruner's Model, Gagne's Model, and Traditional Teaching) under investigation yielded significantly different achievement scores. Further, Ausubel's Model produced better results than the other three models. (3) The F-ratio for the interaction between instructional models and creativity training was significant. (4) The means of three instructional models were not significantly different whereas the no-teaching group showed significantly higher mean score on creativity. (5) The Bruner's Model group and Gagne's Model group showed almost equal total creativity scores. (6) The creativity training did not affect the total creativity scores through Bruner's and Gagne's Model. (7) The no-teaching-Ausubel Model, the no-teaching-Bruner Model and the no-teaching- Gagne's Model were found to differ significantly so far as fluency scores were concerned. (8) The interaction between instructional models and creativity training was found to be significant, revealing that the effect of different models may not be considered independent of the effect of the creativity training. (9) The difference in means of the corrected scores of the four instructional methods was found to be significant. (10) All the

instructional methods under investigation yielded significantly different flexibility scores. (11) The interaction between instructional models and creativity training was found to be significant. (12) The mean flexibility score of the traditional teaching group was the highest when the groups were not given creativity training. The Ausubel Model group without creativity showed a higher mean flexibility score than its counterparts, which suggests that creativity training deteriorates the flexibility score of the Ausubel's Model group. (13) There existed a non-significance of difference in means of the corrected scores of the four instructional methods on their average originality score. (14) An examination of means of the four groups revealed that student learning achievement through the Ausubel Method was the best among the four groups. The corrected achievement score due to the Ausubel model was found to be the highest. Achievement of students through traditional teaching was the poorest among all the instructional methods. (15) The corrected creativity score due to higher creativity level students was found to be the highest. (16) An examination of means showed that the corrected creativity score due to traditional teaching was the highest. The Ausubel Model group produced the second highest creativity score and the Bruner and Gagne group performance was almost equal. (17) The Ausubel, Bruner, and Gagne groups did not differ significantly from each other with regard to their fluency scores. (18) High and low creativity groups differed only marginally as far as their flexibility scores were concerned. (19) There existed a non-significant difference between high, middle and low creativity groups as far as originality scores were concerned. (20) The effect of instructional models was independent of levels of creativity. (21) The originality score was the highest for the high-creativity level and lowest for the low-creativity level even without creativity training. However, high-creativity groups of with- and without-creativity training were not different from each other on their originality scores. [Author 1204]

Gautam, Shashi. 1992. **Development of creative thinking and leadership among Navodaya Vidyalaya students.** Ph.D., Edu. Himachal Pradesh Univ.

Problem: This study explores the development pattern of creative thinking and leadership behaviour among Navodaya Vidyalaya students.

Objectives: (i) To study the development pattern of creative thinking and leadership behaviour characteristics among the Navodaya Vidyalaya students of Himachal Pradesh, and (ii) to study the sex differences in the development pattern of creative thinking and leadership behaviour among the Navodaya Vidyalaya students of Himachal Pradesh.

Methodology: As many as 866 randomly selected students from Grades VI, VII and VIII from five Navodaya Vidyalayas formed the sample of the study. The tools used were Leadership Behaviour Characteristics Questionnaire, Verbal Test of Creative Thinking, and Socio-economic Status Scale Questionnaire. Analysis of variance was used for the purpose of analysis of data.

Major Findings: (1) There was a significant development pattern of creative thinking among the Navodaya Vidyalaya students of Himachal Pradesh in the case of the dimensional components of fluency and flexibility but not in the case of the originality component of creative thinking. (2) There were no significant sex differences in the development pattern of creative thinking, though girls tended to be more creative than boys on dimensional scores of fluency, flexibility, and originality, as well as, on total scores of creative thinking. (3) The high and the low socio-economic status groups of students did not differ on creativity. (4) There was a significant development pattern from Grades VI to VIII among students of Himachal Pradesh in the total leadership behaviour. (5) The low SES students exhibited better leadership qualities as compared to their high SES counterparts. (6) There was a significant development pattern of communication qualities of leadership behaviour among students. [LK 1318]

Ghosh, M.C. 1991. **A study in creativity, motor ability and motor creativity of adolescent students.** Ph.D., Edu. Univ. of Kalyani.

Problem: Motor creativity is a combination of both innate and acquired qualities — a combined expression of creativity and motor ability. This study investigates the relationship between creativity, motor ability and motor creativity.

Objectives: (i) To find the relationship between creativity, motor ability and motor creativity, (ii) to study whether motor creativity was dependent upon creativity or on motor ability or on both, (iii) to study whether sex or strata (in this case, athlete and non-athlete) had any influence on creativity and its components, on motor ability, and on motor creativity, and (iv) to study whether motor creativity could be predicted if the original scores of creativity and motor ability were known.

Methodology: The sample comprised 600 students aged between 13 to 16 years. The tools used were Passi Tests of Creativity (Bengali version by M.C.Ghosh), Motor Ability measured through five Standardised Tests, and Motor Creativity measured through a newly constructed Motor Creativity Test consisting of five test items. Descriptive statistics, Analysis of variance, product-moment correlation, multiple correlation, and regression analysis were used for the analysis of data.

Major Findings: (1) Boys were superior to girls in motor ability, creativity and its components. (2) Athletes were superior to non-athletes in motor creativity. (3) The boys' athlete group was superior in all the parameters to the other three groups. (4) Creativity, motor ability and motor creativity were positively related with each other. (5) The scores of all the four groups in motor creativity, creativity and motor ability had a significant relationship. (6) Motor creativity scores were directly related with scores in motor ability and creativity, and were also dependent upon them. (7) Motor creativity scores could be predicted from the multiple regression equation with the help of creativity and motor creativity scores. [PDR 0618]

Goel, Tanuja. 1990. **The impact of institutional locale and sex in the development of creativity components among junior high school students.** Ph.D., Edu. Agra Univ.

Problem: The attempt is to study the impact of institutional locale and sex on the development of creativity components among junior high school teachers.

Objectives: (i) To study the development of creativity — Fluency, Flexibility, and Originality — in relation to educational level, (ii) to study sex differences in relation to the development of creativity, and (iii) to study creativity in relation to locale.

Methodology: The sample comprised 300 rural and urban students. The tool used was the: Verbal Test of Creative Thinking by Baqer Mehdi. Mean, SD, and 't' test were used for the purpose of analysis of data.

Major Findings: (1) A significant developmental change in the mean creativity scores was perceptible among teachers of Classes VI to VIII but the change between Classes VI and VIII was only marginal and insignificant. (2) Females were significantly superior to males in creativity. (3) Developmental differences in creativity existed between urban area students of Classes VI and VII, and VI and VIII as well as their counterparts in rural areas. [SS 0774]

Gore, C.V. 1990. **A study of the future orientation of Grade IX boys and girls with high level of creativity with respect to certain cognitive and non-cognitive variables.** Ph.D., Psy. Nagpur Univ.

Problem: The present study aims at assessing the future orientation of Grade IX students in terms of achievement-motivation and the perceived instrumentality of the SSC examination marks for their future goals, and relating these to their academic attainment at the Class IX and the SSC level.

Objective: To understand the relationship of

future orientation among the Grade IX boys and girls with their academic performance as well as their cognitive and non-cognitive personality attributes.

Methodology: The sample comprised 429 students of Grade IX from 10 different schools located in Nagpur. The tools used were Perceived Instrumentality Index (PI), High School Personality Questionnaire (HSPQ), Test of Creativity (Cr), Abstract Reasoning Test (AR) by J.M. Ojha (Hindi version), Achievement Value and Anxiety Inventory (AVAI), and Verbal Test of Intelligence (Parts I and II). Median, unweighted mean analysis, frequencies, and harmonic mean were calculated for analysis of the data.

Major Findings: (1) Those who perceived the relationship between SSC marks and future career goals to be more important and more achievement-oriented, scored more marks at the SSC. (2) Differences in perceived instrumentality produced differences in SSC examination marks among those who were high in achievement-motivation but not among those low in achievement-motivation. (3) Higher achievement-oriented students of Grade IX obtained more marks at their SSC examination; also, as those who perceived the relationship more important obtained more marks in that examination. (4) When boys and girls were considered separately, instrumental tendencies did not appear to have influenced their examination performance. (5) The perceived instrumentality tended to serve as a significant source of variance in examination performance for the girls but not for boys. (6) The achievement motive served as a significant source of variance in examination performance for boys, but not for girls. [GPK 1593]

Gujarathi, Nalini M. 1992. **Preparation of an integrated programme of training in scientific creativity and experimental study of its effects on students of Grade IX.** Ph.D., Edu. Shreemati Nathibai Damodar Thackersey Women's Univ.

Problem: This study deals with the identification and development of scientific creativity in students at the school level to enable them to face the challenges and problems of the 21st century.

Objectives: (i) To prepare an integrated programme of training in scientific creativity; and (ii) to test it experimentally on secondary school students studying in Grade IX.

Methodology: The sample consisted of 60 students. The tools used were Majumdar Scientific Creativity Test (Part I and II), Scientific Creativity Test developed by the researcher, and Progressive Matrices Test by Raven. The Wilcoxon Mann-Whitney 'U'-test was used for the purpose of analysis of data.

Major Findings: (1) On the Scientific Creativity Test, the experimental group received higher Z than expected. The results were highly significant. (2) On results for the researcher's scientific test, as the experimental Z score was much higher than the table value of Z on all the four scores of creative abilities, the results were highly significant. (3) The main objective of preparing an integrated training programme in scientific creativity was achieved. (4) The test in scientific creativity constructed by the researcher was reliable and valid for measuring the effectiveness of the training programme. (5) The gains in the tests of scientific creativity by the experimental group were highly significant. [AGB 1286]

Gupta, Arun K. 1988. **Comparative profiles of adolescents with different talents in terms of some selected variables.** Independent study. Jammu : Model Institute of Educational Research (MIER). [ERIC Funded]

Problem: The present work is an attempt to study creative individuals in various fields at the +2 stage with specific reference to the profiles of adolescents talented in various fields of creativity, i.e. scientific, mathematical, entrepreneurial and general overall creativity.

Objectives: (i) To identify and ascertain the incidence of scientific, mathematical, entrepreneurial and overall creativity among pupils at the +2 level of education in Jammu City, (ii) to delineate profiles of adolescents with high overall creativity, as also, high creativity in the scientific, mathematical and entrepreneurial fields with respect to their locus of control, self-concept, interpersonal relations, study habits, self-initiated activities, vocational preferences and scholastic achievement, respectively, (iii) to fit in a regression equation involving scores of locus of control, interpersonal relations, study habits, self-initiated activities, intelligence and scholastic achievement, respectively, to predict creativity in different fields, and (iv) to study the inter-group differences among adolescents with high and low creativity in different fields with respect to marker variables, namely, intelligence and achievement.

Methodology: A total sample of 5,220 subjects was taken keeping in view the needs, objectives and aims of the study in different phases. The researcher used a battery of tests of Scientific Creativity, Mathematical Creativity, and Entrepreneurial Creativity developed by the researcher, an Interpersonal Relations Inventory, and a Study Habits Questionnaire developed by the investigator, MIER Tests of Verbal and Non-verbal Creativity by Gupta, Deo's Personality Word List by Pratibha Deo, Rotter's I.E. Scale (Hindi adaptation by V.P. Aggrawal), Vocational Preference Check-list by Gupta, the Torrance 'Things Done on Your Own' Check-list (Hindi version by B.K. Passi), and General Mental Ability Test by Jalota and Tandon. Mean, SD, skewness, product-moment correlation, chi-square, ANOVA, multiple correlations, and multiple regression were used for the purpose of analysis of data.

Major Findings: (1) It was found that adolescents with high entrepreneurial creativity differed significantly from low entrepreneurial creativity adolescents on interpersonal relations, self-initiated activities, intelligence, general

creativity, academic achievement, and study habits, but not on locus of control. (2) Adolescents with high scientific creativity differed significantly from low scientific creativity groups on interpersonal relations, intelligence, self-initiated activities, general creativity, academic achievements, study habits and on locus of control and memorisation. (3) On mathematical creativity, the high and low creative groups differed significantly on interpersonal relations, intelligence, locus of control, creativity, academic achievement and study habits but not on 'things done on your own', planning, memorisation and study habits. (4) On general creativity, adolescents of low and high creativity groups were found to differ significantly on interpersonal relations, intelligence, academic achievement and study habits but not on locus of control, and 'things done on your own'. (5) On perceived self-images of high and low entrepreneurial creative groups, it was found that adolescents with high entrepreneurial creativity described themselves as active, confident, clear-thinking, practical, sensitive, systematic, self-controlled, frank, bold, atheist and modest, while the low entrepreneurial creativity group described themselves as controlled, simple, affectionate, excitable, conventional, awkward, persevering, reserved, cheerful, modest and serious. (6) On perceived self-images, the high scientific creativity group described itself as active, brave, cheerful, confident, clear-thinking, graceful, noble, self-controlled, conservative and sensitive. The low scientific creativity group described itself as complacent, contented, honest, reticent, unirratable, progressive, critical, efficient and informal. (7) The high mathematical creativity group described itself as responsible, noble, punctual, brave, clear-thinking, graceful, self-controlled, strong, sensitive, practical, serious and conservative. On the other hand, adolescents with low mathematical creativity described themselves as aggressive, affectionate, excitable, intelligent, honest, humorous, reticent, sophisticated, mischievous, contented, competent and trusting. (8) It was found that adolescents with

high general creativity described themselves as active, confident, disciplined, clear-thinking, cheerful, fair-minded, happy, responsible, conservative and sensitive. Adolescents with low general creativity described themselves as contented, easy-going, intelligent, reticent, uncritical, defiant, excitable, unirratable, pessimistic and pretending. (9) The high and low entrepreneurial creativity groups of commerce did show similar preferences on vocation but not the mathematics groups, the scientific creativity groups or the general creativity groups. (10) Among science group it was found from the regression analysis that five of the six variables, namely, intelligence, academic achievement, study strategy, interpersonal relations and locus of control were contributing positively to predicted scores, while the variables 'things done on your own' contributed negatively. (11) Among the mathematics group, three out of six variables namely, 'things done on your own', achievement and total interpersonal relations contributed positively to the predicted scores; the other variables contributed negatively. [CGVM 1873]

Gupta, Krishna Kumari. 1988. **The creative development of secondary school children in relation to sex, intelligence and urban and rural background.** Ph.D., Edu. Agra Univ.

Problem: The study focuses on the creative development of secondary school children in relation to sex, intelligence and urban and rural background.

Objectives: To study the creative development of secondary school boys and girls along the age continuum and education in order to (i) know the trends of creative development of boys and girls, (ii) estimate the sex difference in creative development, (iii) find out zonal (urban and rural) differences in the creative development patterns of boys and girls; and (iv) find the relationship between creativity and intelligence of boys and girls of urban and rural areas at different stages of development.

Methodology: Two thousand urban and rural students, between the age of 11-15 years, studying in government-aided secondary schools situated in Aligarh District were selected to form the sample of the study. The tools used were: Creativity Thinking Test (Verbal and Non-verbal) developed by Giriraj Kishore, and Mohsin's General Intelligence Test.

Major Findings: (1) Urban and rural boys and girls developed rapidly in creativity from the age of 11 (Grade VI) to the age of 13 (in the case of boys), and 14 (in the case of girls—Grade VIII) but later there was a sharp decline up to the age of 15 years (Grade X). (2) In general, creativity had a tendency to rise from the age of 11 (Grade VI) and continue to do so up to Grades VIII and IX. After this stage there appeared a sharp decline. The development of creativity was at its peak between the age of 13-14 years (Grades VIII and IX). (3) Creativity had a significant correspondence with age and grade up to 13 years (Grade VIII). (4) In general, girls showed excellence as compared to boys in creative development between the ages of 13-15 years, both in urban and rural areas. (5) The trends of creative development of boys and girls were not linear. (6) Urban students were superior to rural students in creative development, especially during the age of 11-15 years. (7) There existed a low but positive relationship between creativity and intelligence of secondary school boys and girls of urban and rural areas. (8) The creativity and intelligence of rural children were lower than those of the corresponding urban students. (9) Creativity factors were positively but slightly correlated with intelligence at each grade, i.e. from Grades VI to X, both in urban and rural areas. (10) The value of correlation coefficient between creativity factors and intelligence in the case of rural students was comparatively lower than in the case of the urban students. (11) Creativity had a significant correspondence with intelligence from Grade VI to Grade VIII, i.e. from the age of 11 to 13 years both in urban and rural areas. (12) There was a decline in the

relationship between creativity and intelligence at Grade level IX-X, i.e. from the age of 14 to 15, both in urban and rural areas. [SS 0825]

Gupta, M.P. 1989. **The prediction of creativity from biographical data.** Ph.D., Edu. *Agra Univ.*

Problem: This study attempts to predict creativity from biographical variables.

Objectives: (i) To study the nature and extent of the relationship between variables pertaining to biographical data and fluency, flexibility, originality and composite creativity, (ii) to determine the relative contribution of variables pertaining to biographical data in predicting fluency, flexibility, originality and composite creativity, (iii) to study the multiple relationship between biographical variables and fluency, flexibility, originality and composite creativity, and (iv) to make a comparative study of the multiple relationships between the set of predictors, i.e. variables pertaining to biographical data of male and female students of all the four educational streams, on the one side, and fluency, flexibility, originality and composite creativity on the other.

Methodology: Six hundred male and female students of 19-21 years studying in P.G. classes in Agra formed the sample of the study. The tools used included Verbal Test of Creative Thinking by Baqer Mehdi and the Biographical Questionnaire by Malik and Bhattacharya. Mean, SD, correlation, 't' test, multiple regression equation were used for the purpose of analysis of the data.

Major Findings: (1) School interests, thoughts and conversations were valid positive predictors of fluency and flexibility when considered separately. (2) Parents' educational level and size of family were negative predictors of fluency, flexibility, originality and composite creativity when considered separately. (3) Biographical variables when considered as a team, were valid predictors of fluency, flexibility, originality, and composite creativity. (4) School reading interests,

thoughts and conversations and content of behaviour were valid positive predictors of originality and composite creativity when considered separately. (5) By and large, sex did not play any significant role in the prediction of creativity, but it played a significant role in predicting creativity from biographical variables only when the variables were considered as a set. [SS 0766]

Jain, Smeeta. 1992. **A study of creativity in relation to the teaching aptitude, skills and personality variables of pupil teachers.** Ph.D., Edu. Nagpur Univ.

Problem: This study attempts to make a detailed inquiry of the factors such as pupil-teachers' creativity and its relation to their teaching aptitude, teaching skills and personality variables that may reveal useful and new facts which may have a direct influence on the teachability of creativity.

Objectives: (i) To determine the personality profiles of creative teachers, (ii) to investigate the relationship of creativity with the teaching aptitude, skills and personality variables of pupil-teachers and its impact on their classroom creativity, (iii) to find out the differences between high and low creative pupil-teachers in the context of their teaching aptitude, skills and personality variables, and (iv) to indicate the desirable changes in the teacher education programme to promote creativity.

Methodology: Two hundred and eighty pupil-teachers from two colleges, i.e. University College of Education, Nagpur, and P.P.College of Education, Gondia, formed the sample of the study. The tools used were Torrance Tests of Creative Thinking (Verbal form A) by E.P.Torrance, Classroom Creativity Observation Schedule by Denny, Cattell's Sixteen Personality Factors Questionnaire, Teaching Aptitude Test by Prakash and Srivastava, Microteaching Techniques and Observation Schedule prepared by the researcher. Mean, SD, coefficient of

correlation and 't' test were used for the purpose of analysis of data.

Major Findings: (1) Positive and highly significant correlation was found between creativity and classroom creativity, teaching aptitude, and teaching skills. (2) Out of the sixteen personality factors, positive and highly significant relationship was found with factors C, G and Q₁ and low but positive correlation was found with factor E. (3) Positive and highly significant relationship was found between factor Q₁ and classroom activity. (4) Low but positive and significant relationship was found between teachers' classroom activity and teaching aptitude. (5) There existed mean differences in the case of all the teaching skills of high and low groups of pupil-teachers (formed on the basis of classroom creativity), but these were not statistically significant. [GPK 1694]

Jawaharlal, J.R. 1990. **Evolving educational programmes for fostering creativity among primary school children.** M.Phil., Edu. Madurai Kamaraj Univ.

Problem: This study aims at finding out whether the Structured Creative Teaching Programme taught in brainstorming sessions will be useful for fostering creativity among primary school children.

Objectives: To find out experimentally whether the: (i) Structured Creative Teaching Programme (SCTP) through brainstorming technique increases the composite creativity scores of primary school children, (ii) SCTP through brainstorming technique increases the creativity scores in fluency, flexibility and originality of the primary school children, and (iii) sex difference influences the composite creativity scores of the primary school children when they are exposed to SCTP through the brainstorming technique.

Methodology: Thirty primary school children of Standards IV and V from the Sourashtra School, Madurai, constituted the sample of the

study. Mean, SD and 't' test were used to treat the data.

Major Findings: (1) Creativity was enhanced in primary school children when they were taught through brainstorming sessions. (2) Both male and female primary school children had similar enhancement in creative abilities, such as fluency, flexibility, and originality when they were taught through specially prepared creative programmes. [MKU 1070]

Jayaraman, S. 1992. **Perspectives in Education**. M.Phil., Edu. Alagappa Univ.

Problem: This is a bibliographic study of *Perspectives in Education*, a journal published by the Society for Educational Research and Development, Baroda.

Objectives: (i) To assess whether *Perspectives in Education* has realised its objectives by finding out quantitatively (a) how far the contributions published in *Perspectives in Education* are interdisciplinary; (b) the extent of involvement of Third World countries in the contributions; (c) the category-wise contributions, viz. in the categories of issues and trends, research, communication, comments, criticism and review, (ii) to find out the dispersion of the content areas of the contributions as per Buch's classification of subject areas in his Fourth Survey of Research in Education and thereby to ascertain the areas which attract more attention from the contributors and the areas which show 'gaps', if any, (iii) to calculate the average time-lag between the receipt of manuscript and its publication in *Perspectives in Education*, (iv) to explore the trend towards multiple authorship with reference to the contributions in *Perspectives in Education*, (v) to find out the productivity of authors contributing to *Perspectives in Education* in the course of its seven years of publication, (vi) to analyse the contributors with regard to their country, state, sex, institutional affinity, and (vii) to assess the contributions of the contributors quantitatively on the basis of above factors.

Methodology: The researcher took 28 issues of *Perspectives in Education* as the entire population. Percentages, Spearman rank correlation coefficient, weighted arithmetic mean index, bar diagrams and pie charts were used for the analysis of the data.

Major Findings: (1) The category 'issues and trends' has attracted the most attention from scholars. (2) Around 85.25% articles are interdisciplinary or multidisciplinary, viewing the educational issues and problems from economic, sociological, historical, psychological, methodological, and philosophical perspectives. The articles also discussed education from the viewpoint of women, mass media, technology, peace, science, etc. (3) It was found that 125 out of the 146 articles focused attention on educational issues related to the Third World. (4) There was a positive correlation between the dispersion of the object areas of the contributions in the *Perspectives of Education* and the studies reported in the Fourth Survey of Research in Education by Buch. (5) 86.89 % of the total of 144 contributors have contributed only one article each, 9.66% two articles each, 2.07% three articles each, 0.69% four articles each and 0.69%, six articles each. (6) The time-lag varied from two months to 25 months between the date of submission of the manuscript and its publication. [SM 1775]

John, C.D. 1988. **Familial and school correlates of creativity: A study of Standard IX students**. M.Phil., Edu. Bangalore Univ.

Problem: The study focuses on familial and school correlates of creativity of Standard IX students .

Objectives: (i) To see whether differences in the socio-economic status of the parents would account for the differences in the creativity levels of Standard IX students in Bangalore City, (ii) to find out whether differences in the family type of the Standard IX students would cause significant differences in their levels of creativity, (iii) to

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examine whether differences in the parent-child interaction levels of the students would result in significant differences in the levels of creativity of Standard IX students, (iv) to examine whether differences in the anxiety and achievement values of these students would account for significant differences in their creativity levels, (v) to see whether male students would be different from female students with regard to their levels of creativity, (vi) to find out the various factors accounted for by each of the variables, namely, SES of the parents of students, their family size, their parent-child interaction, and the anxiety and achievement values of students, and (vii) to develop a regression equation for the study of the variance in creativity by using the independent variables SES, family size, parent-child interaction, anxiety and achievement values.

Methodology: A two-stage sampling procedure was adopted for the study. At the first stage, 18 schools were selected using random numbers, from the total number of schools of Bangalore. At the second stage, a sample of 242 students were selected from these schools. The tools used were Tests of Creative Thinking by Baqer Mehdi, Achievement Value and Anxiety Inventory by Prayag Mehta, Parent-Child Interaction Scale by Thirtha and Nalini Rao, and Socio-economic Status Scale by Kuppuswamy. Mean, SD, correlation, 't' test, multiple correlation and regression equation were used for the analysis of data.

Major Findings: (1) Sex and family type of Standard IX students did not affect their verbal, non-verbal and total creativity. (2) The smaller the size of the family of Standard IX students, the higher was their level of verbal and total creativity. However, this trend did not prevail in respect of size of family and non-verbal creativity. (3) The higher the SES of the parents, the higher was their level of verbal, non-verbal, and total creativity. (4) The more the parent-child interaction, the higher their non-verbal and total creativity. However, this did not prevail in the

verbal component of creativity. (5) Anxiety and achievement values of students did not affect the verbal, non-verbal, and total creativity. [MKh 0313]

Khan, Khushnuma Begum. 1987. **A study of innovative proneness and its correlates in the secondary schools.** Ph.D., Edu. *The Maharaja Sayajirao Univ. of Baroda.*

Problem: The study focuses on the problem of innovative proneness of secondary school teachers.

Objective: (i) To study the innovative proneness of secondary school teachers in relation to the leadership behaviour of the principal, the organisational climate, and the job-satisfaction of teachers, and (ii) to study the innovative proneness of secondary school teachers with respect to their personal variables.

Methodology: Seventy secondary schools from Gujarat and 20 Kendriya Vidyalayas from all over India formed the sample of the study. The tools used were Innovative Proneness Scale by M. S. Patel, Leadership Behaviour Description Questionnaire by Halpin and Winer, Organizational Climate Description Questionnaire by Halpin and Croft, and Job-Satisfaction Inventory developed by the researcher. Mean, SD, 't' test, and correlation were used for the purpose of analysis of data.

Major Findings: (1) The innovative proneness of Kendriya Vidyalaya boys' school teachers was high. (2) The middle age-group teachers with long teaching experience had higher innovative proneness than the younger group with less experience. (3) Academic qualification was highly related to innovative proneness. (4) As regards organisational climate, 31% schools had a closed climate, 20% had an open climate, 18% had a controlled climate, 13% had an autonomous climate and 5% had a familiar climate. (5) Innovative proneness was not significantly related to the leadership behaviour of the principal and the organisational climate but was

significantly related with job satisfaction of teachers. [MSY 0924]

Khiangte, Varparhi. 1988. **Non-cognitive correlates of creativity among the secondary school students.** Ph.D., Edu. North-Eastern Hill Univ.

Problem: The study examines the creative thinking ability in secondary school students. Further, the relationships between creativity and personality, sex differences and locale differences in the context of personality were also analysed.

Objectives: (i) To compare the personality characteristics of the high creative and the low creative secondary school students, (ii) to find the sex differences in the personality characteristics of the high creative students, (iii) to examine the locale differences in personality of high creative boys and girls, and (iv) to make suggestions for improving the educational practices to enhance creative thinking ability among secondary school students.

Methodology: Seven hundred students from Classes IX and X studying in ten secondary schools of Mizoram comprised the sample of the study. The tools used included Cattell's 14 High School Personality Factors Questionnaire, and Creativity Test developed by the researcher. Mean, SD, 't' test, and correlation were used for the analysis of the data.

Major Findings: (1) High creative students were superior in abstract thinking, assertive, affected by feelings, tender minded, placid, doubting, venturesome and reserved when compared to low creatives. (2) Intelligence, sensitivity, independence, assertiveness, and spontaneity were significant correlates of creative thinking abilities observed among the secondary school students. (3) High creative boys were better oriented on affectothymia factor of personality, superior in scholastic mental ability, better ego strength, and better oriented on phlematic excitable characteristic of personality than high

creative girls. (4) High creative girls were observed to have a higher degree of ergic tension than the high creative boys, and were noted to be tense, restless and took a poor view of the degree of unit, orderliness and leadership. (5) Rural high creative students when compared to urban high creative girls showed that high creative girls from urban areas were found to be more intelligent, emotionally stable, conscientious, tender minded, and self-sufficient as against their reserved, group-dependent and expedient rural counterparts. (MAS 0743)

Krishnegowda, B. 1991. **Impact of hemispherical dominance, personality types and risk-taking behaviour of B.Ed. students on their creativity.** M.Phil., Edu. Bangalore Univ.

Problem: The study aims at finding the impact of hemispherical dominance, personality types and risk-taking behaviour of B.Ed. students on their creativity.

Objectives: (i) To study whether the differences in hemispherical dominance of B.Ed. students of Bangalore City would account for the significant differences in their level of verbal, non-verbal and total creativity, (ii) to study whether the differences in personality types of B.Ed. students of Bangalore City would result in the differences in their level of verbal, non-verbal and total creativity, (iii) to study whether the differences in risk-taking behaviour of B.Ed. students of Bangalore City would result in the differences in their level of verbal, non-verbal and total creativity, (iv) to find out an interaction effect, if any, between all the pairs of independent variables on the one hand and all the independent variables on the creativity of B.Ed. students on the other hand, and (v) to provide suitable suggestions to the promotion of creativity of B.Ed. students of Bangalore City and to give appropriate recommendations for further research in this area.

Methodology: Two hundred and fifteen B.Ed. students from 11 B.Ed. colleges formed the sample of the study. The tools used were Verbal

and Non-verbal Tests of Creative Thinking by Baqer Mehdi, a Style of Learning and Thinking (SOLAT) Youth Formed by E.P. Torrance, Introversion-Extraversion Inventory by Kundu, Verbal Measure of Risk-taking by Chaubey, and Description of Tests of Creative Thinking by Baqer Mehdi.

Major Findings: (1) There was no significant difference in the levels of total creativity of B.Ed. students belonging to high, moderate and low risk-taking groups. (2) There was a significant difference in the levels of total creativity of B.Ed. students belonging to the left, right and integrated hemispherical dominance groups. (3) There was a significant difference in the levels of total creativity of B.Ed. students belonging to the introversion, extraversion and ambiversion groups. (4) There was a significant interaction effect of the levels of risk-taking and hemispherical dominance of B.Ed. students on their total creativity. (5) There was a significant interaction effect of the levels of risk-taking and personality types of B.Ed. students on their total creativity. (6) There was no significant interaction effect of the levels of hemispherical dominance and personality types of B.Ed. students on their total creativity. (7) There was no significant interaction effect of the levels of risk-taking, hemispherical dominance and personality types of B.Ed. students on their total creativity. [MKh 0311]

Kumar, Girijesh. 1989. **A follow-up study of creatively talented college students.** Independent study. Moradabad: Hindu College. [ERIC Funded]

Problem: The study attempts to conduct follow-up of students who were found creatively talented.

Objectives: (i) To study whether young people identified as creatively talented during their college years become creative and productive adults in their later life, (ii) to study the occupational choices of creative students

identified on the basis of creativity tests, (iii) to study the extent of job satisfaction of creatively talented adults, (iv) to study the marital status and ordinal position of creatively talented adults, (v) to study the work values of creatively talented adults, and (vi) to study the background factors and academic attainments of creatively talented adults.

Methodology: The sample comprised 425 subjects enrolled for B.Sc. during 1975. In the follow-up study, during 1985-86, 120 subjects responded. The tools used included Questionnaires, Torrance Test of Creative Thinking, Work Values Inventory, Creative Style of Life, Raven's Standard Progressive Matrices, Maudsley Personality Inventory, Choice Dilemma Procedure, and Embedded Figures Test. Percentages, mean, SD, standard error 't'-test, and correlation were used for the purpose of analysis of data.

Major Findings: (1) It was found that a majority of the fathers of creatively talented were graduates while those of the less creatively talented were intermediate only, and the mothers of creatively talented were matriculates while those of the less creatively talented were non-matriculates. (2) As regards education of the creatively talented groups, both the categories had a majority under the matriculate group. (3) With regard to the occupational choices of the fathers, it was found that a majority of the fathers of the creatively talented were professionals, while among the less creatively talented the fathers were sales workers. (4) It was found from among the respondent subjects, that the monthly income of the parents of both the talented and the less talented groups was Rs1,000 or less. (5) As regards the birth order, it was found that a majority of the creatively talented were second-born whereas, the less creatively talented were third-born. (6) With regard to occupational choices, it was found that most of the creatively talented and the less creatively talented were working in conventional occupations. Only three subjects chose unconventional occupations. (7) Fluency, flexibility and originality in the case of verbal as

well as non-verbal and the composite creativity were the predictors of academic achievement. The poorest of creativity predictors were verbal and non-verbal originality, and the best were fluency and flexibility. (8) The creatively talented group differed significantly from the less creatively talented group on both verbal and non-verbal creativity. But on intelligence the two groups did not differ significantly. (9) The creatively talented and the less creatively talented groups differed significantly on quantity and quality of creative achievement, and on creativeness of aspirations. (10) A comparison of the creatively talented and the less creatively talented differed significantly on 'freedom' and 'creativity' in favour of the former group. [CGVM 1145]

Kumar, M.A. Sudhir. 1992. **Socio-educational correlates of creativity among secondary school students in Arunachal.** *Indian Educational Review*, Vol. 27(1):98-106.

Problem: The present research is designed to examine the creative thinking ability of the secondary school students in Arunachal Pradesh.

Objectives: (i) To measure the level of creative thinking ability among the secondary school students, and (ii) to find out the relationship of select socio-educational variables with creative thinking ability.

Methodology: The sample comprised 200 secondary school students from two government high schools and one Central school of the lower Subansiri and West Siang Districts of Arunachal Pradesh. The tools used were Creativity Test developed in the Department of Education, North-Eastern Hill University, Aizawal, adapted to Arunachal Pradesh, Personal Data Sheet specially devised for the study, Socio-economic Status Index (SESI) by Lalrinkimi, and Index for Media Exposure by Lalrinkimi. Mean, SD and chi-square were used for the analysis of data.

Major Findings: (1) The male and female students did not show any significant difference in their creative thinking ability. (2) The students

belonging to high (15 years and above) and low (below 15 years) age-groups failed to differentiate in their creative thinking ability. (3) The last-born were found to be definitely superior in creative thinking ability when compared to the middle-born and the first-born. (4) Parents' education was found to foster higher creative thinking ability. Students with educated parents attained higher creativity scores than those with illiterate parents. (5) Parental occupation was not found to be a factor related to the creativity of the children. (6) A moderately high positive linear relationship was observed between the variables of creativity and socio-economic status. The students from high socio-economic background were definitely superior to those from the lower strata in their creative thinking ability. (7) The students with a higher family facility score possessed a higher creativity score than their lower family facility counterparts. (8) Exposure to mass media seemed to have a positive significant effect on the creative thinking ability of the children. The students highly exposed to media had an advantage over the lower exposed students in their creative disposition. (9) The students with literary interests gained superiority in creative thinking when compared to those with social and cultural interests. (10) The students with high creative thinking ability sported pastimes of an informative nature as against the recreational and socio-cultural leisure-time activities of the low-creative students. (11) The type of school in which the students studied was also found to influence their creative thinking ability. The government school students had an edge over the Central school students in creativity. [SPr 1894]

Kumari, Kamlesh. 1992. **Creativity of ninth graders in relation to their socio-economic status, achievement-motivation and adjustment.** Ph.D., Edu. *Punjabi Univ.*

Problem: This study aims to find relationship of creativity and its measures with SES, achievement-motivation (n-ach) and adjustment

among Grade IX females, and prediction of creativity from SES, achievement-motivation and adjustment.

Objectives: (i) To determine the relationship of composite creativity and its dimensions with the socio-economic status of the subjects, (ii) to study the common effect of achievement-motivation on the relationship between composite creativity and its dimensions with the socio-economic status of the subjects, (iii) to determine the common effect of achievement-motivation and adjustment on the relationship between composite creativity and its dimensions and the socio-economic status of the subjects, (iv) to find out the relationship of composite creativity and its dimensions with the achievement-motivation of the subjects, (v) to study the common effect of socio-economic status on the relationship between composite creativity and its dimensions and the achievement-motivation of the subjects, (vi) to find out the common effect of socio-economic status and adjustment on the relationship between composite creativity and its dimensions with the achievement-motivation of the subjects, (vii) to explore the relationship of composite creativity and its dimensions and the adjustment of the subjects, (viii) to find out the common effect of socio-economic status on the relationship between composite creativity and its dimensions and the adjustment of the subjects, (ix) to find out the common effect of socio-economic status and achievement-motivation on the relationship between composite creativity and its dimensions and the adjustment of the subjects, and (x) to study the conjoint effect of socio-economic status, achievement-motivation and adjustment on the prediction of composite creativity and its dimensions.

Methodology: The sample comprised 600 Grade IX female students from 16 high and senior secondary schools of Patiala. The tools used included Torrance Tests of Creative Thinking — Verbal Form A by E.P. Torrance, SES Scale by Srivastava, Achievement-Motivation Scale by Deo-Mohan, Adjustment Inventory

by Singh and Singh. Product-moment correlation, partial correlation, multiple correlation, and 't' test were used for the purpose of analysis of data.

Major Findings: (1) Creativity and SES were positively correlated. (2) Achievement need was positively correlated with total creativity. (3) When the effect of SES was partialled out, the magnitude of correlation between n-achievement and all the four creativity measures was reduced and remained significant only for fluency. (4) When the effect of SES and adjustment was partialled out, n-achievement, which was originally positively correlated with flexibility and total creativity, did not remain. (5) Total creativity, flexibility and originality were not related with adjustment. Fluency was positively related with adjustment. When the effect of SES was partialled out, the adjustment was not related with total creativity, fluency, flexibility and originality. (6) After partialling out the effect of SES and n-achievement, no relationship was found between adjustment and creativity measures. (7) Prediction of creativity was not significantly better when made on the basis of the conjoint effect of SES, n-achievement, and adjustment than if made on the basis of either of the three independent variables. This was true for total creativity as well as fluency, flexibility and originality. (8) SES was positively correlated with n-achievement as well as adjustment. (9) High SES students had significantly more n-achievement than low SES students. (10) Compared with low SES students, high SES students had better emotional, social, educational and total adjustment. (11) Compared with low n-achievement students, high n-achievement students had more emotional, social, educational and total adjustment. [AK 1714]

Loomba, Samita and Verma, Suman. 1990. **Learning abilities as a function of creativity and attention span in children.** *Indian Educational Review*, Vol. 25(4): 74-83.

Problem: The present study is undertaken to study the learning abilities in children and how factors like creativity and attention span affect the learning process in children.

Objectives: (i) To study the learning abilities children, and (ii) to study the effect of creativity and attention span on the learning process in children.

Methodology: Two hundred and fifty subjects ranging between the age-group of 8-10 years formed the sample of the study. The tools used included Verbal Test of Creative Thinking by Baqer Mehdi, and Test of Attention Span. Mean, SD, 't' ratio and analysis of variance were used for the purposes of analysis of data.

Major Findings: (1) Creativity had a significant effect on learning, with high creativity groups scoring higher on learning tasks as compared to low creative groups. (2) Attention span was found to be positively related to learning, with subjects scoring high on attention span performing better on learning tasks as compared to subjects scoring low on attention span. (3) The high-creativity high attention-span group performed better than the low-creativity low attention-span group, thus bringing about the interactive effect of creativity and attention span on learning in children. [SPr 1463]

Mandal, J.M. 1992. **A study to evolve an autonomous creativity cultivation programme for school students and to assess effectiveness of the programme.** Independent study. *Univ. of Calcutta.* [ERIC Funded]

Problem: This study deals with the problems of designing and constructing effective educational instruction programmes on the prescribed topics for secondary school students which serve to promote the creative potential of the concerned students.

Objectives: (i) To design and construct an Autonomous Creativity Cultivation Programme (ACCP) on the prescribed topics for students of Class IX in literature, science and mathematics,

and introduce it in the classroom situation; (ii) to assess its effect on the students in terms of enhancement in creative scores, and in academic achievement scores, (iii) to explore the practical implications of the findings, and (iv) to suggest measures for the effective introduction of such programmes in secondary schools.

Methodology: Sixty-four students in the experimental group and 62 students in the control group from four selected secondary boys' schools, all affiliated to the West Bengal Board of Secondary Education in three different categories, A, B, and C, in terms of school facilities formed the sample of the study. The tools used included Torrance Tests of Creative Thinking (Verbal form A and Figural form B), Standard Progressive Matrices by Raven, Test of Creative Thinking by Baqer Mehdi, School Academic Achievement Records, Post-teaching Academic Achievement Tests in English, Physics and Mathematics, Auto-instructional Materials and Guided Exercises for ACCP, and Lesson Plans for Orientation. Means, SD, 't' test, and product-moment correlation coefficients were used in the analysis of data.

Major Findings: (1) Students of the experimental and control groups did not differ in terms of verbal and composite creativity scores. However, a marked improvement of non-verbal creativity was observed among students of two schools due to the impact of the autonomous creativity cultivation programme. (2) The experimental group could not gain in the case of English only. (3) Schools differed in respect of gains in creativity and academic achievement levels. [Author 1218]

Mary, Shakunthala G. 1992. **A study of creativity of class VI and class VII children in relation to some variables.** M.Phil., Edu. *Sri Venkateswara Univ.*

Problem: The study is designed to probe into the creativity of children in relation to certain variables, i.e. intelligence, SES, self-concept, emotional maturity, scientific attitude, level of adjustment, and values.

Objectives: (i) To find out whether boys and girls of Class VI and Class VII differ in their creativity, (ii) to examine the relationship between creativity and other variables like intelligence, SES, self-concept, emotional maturity, scientific attitude, level of adjustment, and strength of values, and (iii) to probe into the association between creativity and personal characteristics and habits of life like affinity between the members of the family, type of family, habit of reading magazines, story books, attitude towards stereotype in work, and number of friends.

Methodology: Two hundred children, equally distributed between the two sexes and two Classes, VI and VII, formed the sample for the study. The tools used were four subtests of the Creativity Test Battery by Venkata Rami Reddy, Raven's Coloured Progressive Matrices, S.V. Socio-economic Status Scale, S.V. Scientific Attitude Scale, S.V. Self-concept Scale, S.V. Emotional Maturity Scale, S.V. Adjustment Inventory, S.V. Study of Values and Personal Data Sheet. Analysis of variance, correlation, chi-square and multiple regression were used for the analysis of data.

Major Findings: (1) Boys were found to be better than girls on the fluency component of verbal creativity. Class VII children scored higher than their counterparts in Class VI on the fluency component of verbal creativity. (2) There was a significant difference between intelligence and creativity as measured by verbal tests and non-verbal tests put together. Similar results were obtained for creativity and SES. But this was reversed in the case of intelligence and SES. (3) There was no significant difference between creativity and self-concept, scientific attitude, and level of adjustment. This was true for both verbal and non-verbal tests and for all components of creativity. (4) There was a significant negative relation between creativity and emotional maturity. This was true for most of the components of creativity as measured by either verbal or non-verbal or both types of tests put together. (5) There was no significant relationship

between aesthetic, political or theoretical values. This was true for verbal and non-verbal tests or for both types of tests put together. (6) There was a significant relationship between social values and creativity as measured by verbal tests and by both types of tests put together, but not in the case of creativity as measured by non-verbal tests. (7) Similar results were obtained in the case of theoretical values but the correlation coefficients were negative. (8) In the case of economic values, all the correlation coefficients except for verbal originality, were insignificant. (9) There was no significant association between creativity and type of family, affinity between the members of the family, number of friends the children had, and way of doing things (conventional/unconventional). This was true for creativity as measured by verbal tests and non-verbal tests and by both types of tests put together. (10) There was a significant association between creativity as measured by non-verbal tests and the frequency with which the children read magazines, story-books, etc., but not as measured by verbal tests. (11) In the case of creativity as measured by non-verbal tests, fluency accounted for 80.86% of the variance; flexibility for 70.20%; originality for 77.45%; and composite creativity for 80.87%. (12) Class, sex, intelligence, SES were the most prominent contributors to the variance in creativity in general. [AVRR 1307]

Mehra, Ruby. 1988. **Ego-strength, personality needs and home-emotional climate as the determinants of creativity.** Ph.D., Edu. Agra Univ.

Problem: The study focuses on ego-strength, personality needs and home-emotional climate as the determinants of creativity.

Objectives: (i) To find out if there exists any difference between means of ego systems, the personality needs and the nature of the home-emotional climate of high and low creative groups. (ii) to study the effect of variation of ego-strength,

personality needs and home-emotional climate on creativity, (iii) to study the interacting effect of ego strength and personality needs on creativity, (iv) to study the interacting effect of ego-strength and home-emotional climate on creativity, (v) to study the interacting effect of personality needs and home-emotional climate on creativity, (vi) to predict, i.e. to establish regression equation between creativity as criterion and ego-strength, personality needs and emotional climate as predictors, and (vii) to study the multiple correlation between creativity and its team of predictors.

Methodology: Five hundred students between the age of 15-17 years studying in arts and science faculties of different intermediate schools of Agra City formed the sample of the study. The tools used were Creativity Test by Baqer Mehdi, Ego Strength Scale of MMPI, and Personal Preference Schedule by Tripathi. The collected data were treated using ANOVA, multiple correlation and multiple regression analysis.

Major Findings: (1) Ego-strength was found to be a significant determinant of creativity, both for boys and girls. (2) High creative boys were significantly higher in all needs except n-defense while creative girls were significantly higher in needs. (3) n-ach, n-auto, n-aff, n-change, n-end and n-agg were the significant motivational determinants of creativity in the case of boys while for girls n-ach, n-def, n-auto, n-change and n-end were significant determinants. (4) In all the designs, the democratic home-emotional climate was found to be a positive and significant factor in development of creativity of both the sexes. High creatives were from affectionate and democratic home climates. (5) There existed a significant interaction between ego-strength and various needs in the case of boys and girls. (6) Ego-strength, n-ach, n-auto and emotional-climate were significantly positive predictors of creativity in case of boys. (7) n-def, n-domi, n-end and home-emotional climate were found to be significant positive predictors of creativity in the case of girls. [SS 0829]

Miyan, Mohammad. 1991. **Development and use of creativity tests in India.** Independent study. *Jamia Millia Islamia.* [ERIC Funded]

Problem: This study reviews the existing tests of creativity developed by Indians.

Objectives: (i) To collect information on measures of creativity with respect to their development and use in various research studies, thereby establishing their usefulness, (ii) to review the existing tests of creativity developed by Indians, and (iii) to highlight the use of tests of creativity developed by Indians.

Methodology: The existing creativity tests developed by Indians were subjected to examination and analysis.

Major Findings: (1) Almost all the Indian creativity tests have been patterned on the lines of Guilford's Structure of Intellect model. (2) Torrance Tests of Creativity follow the cognitive approach to assess creativity. (3) The various dimensions scored by almost all tests included fluency, flexibility, originality and elaboration. (4) The items in almost all the tests represent a heavy intake from foreign tests. Though the items are adapted to Indian situations, the rationale for their inclusion cannot be justified. [Author 1206]

Mukherjee, Ranajit. 1992. **Education for Specific Purpose (ESP) for educational journalism: Dynamics of writing.** *Indian Educational Review*, Vol.27(2): 28-39.

Problem: The paper attempts the identification of the basic properties and factors of educational journalism in the context of the teaching of English. Its focus is on identification of factors that are basic to the dynamics of writing and using English for ensuring effective communication with reference to a specific situation.

Objectives: (i) To identify the factors and basic properties of educational journalism in the context of teaching English, and (ii) to find out the dimensions of planning and designing of ideas

in terms of presentation style, format, and use of visuals and diagrams for concretisation of ideas.

Methodology: The paper has been presented by inserting diagrams at appropriate places and giving exposition to various ideas in tabular form.

Major Findings: (1) Clarity, pinpointedness, coherence, logical integrity, and a reader-writer specific presentation style are essential aspects of educational journalism. (2) The content-presentation style is relative to factors such as type of content, level and field of the reader, nature of information, mode of learning system, and basis of motivation for both the reader and writer. [PD 1527]

Mukhopadhyay, Kishore, K.; Chakrabarti, Pranab K. and Kundu, Ramanath. 1990. **Creative development of children: Effects of parental sex, education and hobbies.** *Indian Educational Review*, Vol. 25 (3): 75-80.

Problem: The present study is planned to investigate the effect of parental education, sex and hobbies on the creative development of children.

Objective: To investigate the effect of parental education, sex and hobbies on the creative development of children.

Methodology: The sample comprised eighty most creative and 80 least creative children of the age-group 10-11 years studying in Class V in urban and semi-urban schools and the parents of these 160 children. The tools used included General Verbal Ability Test, developed by the researcher, a modified version of Torrance Tests of Creative Thinking, and an interview schedule. The collected data were treated with chi-square and ANOVA.

Major Findings: (1) Education was found to be related to creativity. (2) Parental sex as an isolated variable had no impact on creativity. (3) Parental hobbies had a highly significant impact on creative development. (4) The interaction effect of parental education and sex

was important in relation to the development of creativity. (5) The interaction effect of parental sex and hobbies was highly significant for creative development. The interaction of parental sex, education and hobbies, when taken together, had no effect on creativity. [SPr 1474]

Pal, Yesh. 1991. **Inter-domain relationship between creativity and intelligence by canonical analysis.** *Indian Educational Review*, Vol. 26 (3):20-28.

Problem: The study addresses itself to the problem of identification of the relationship between the two domains of creativity and intelligence.

Objectives: (i) To study the relationship between the factors of creativity and intelligence, and (ii) to analyse the correlation matrix related to fifteen measures of creativity and intelligence.

Methodology: The study adopted the multivariate statistical technique, known as Canonical Analysis. The tools used were, Verbal Intelligence by Jalota, General Mental Ability Test by Singh, Standard Progressive Matrices by Raven, and Torrance Tests of Creative Thinking.

Major Findings: (1) There was an interplay between the two domains of creativity and intelligence. (2) The measures of the creativity domain could explain 8% variance of the measures of the intelligence domain, and vice versa. (3) The group factor of general intelligence could explain only 6.5% of the total variance of 'creativity', and the corresponding group factor of verbal creativity could explain only 7% of the total variance of intelligence. [PD 1505]

Pandey, A.K. 1989. **A study of divergent thinking in relation to scholastic achievement, cognitive style, self-concept and interest pattern.** Ph.D., Edu. Univ. of Kalyani.

Problem: This study assumes that divergent thinking is the genesis of creativity, which happens to be the goal of present-day education. Class teaching in our country has, unfortunately, been convergent in nature. The emphasis is, therefore, to be laid on divergent thinking (DT). Four variables and their relationship with divergent thinking form the main basis of this study.

Objectives: (i) To predict DT from four predictors, i.e. scholastic achievement, cognitive style, self-concept, and interest pattern, (ii) to test if DT varies in different combinations with respect to the predictors, and (iii) to identify if there is a common factor accounting for unique constellations of cognitive and affective correlates of DT.

Methodology: Three hundred and forty-nine students of Standard X from urban and rural schools of 24 Parganas of West Bengal formed the sample of the study. The tools used were Torrance Tests of Creative Thinking by E.P. Torrance, Embedded Figure Test by Witkins, Non-language Preference Schedule by Chatterjee, *Atmabodh Nirnayak*, and Scholastic Achievement Test developed by the researcher. Correlation, multiple regression analysis, and factor analysis were used for the purpose of analysis of data.

Major Findings: (1) There was a significant relationship between DT and cognitive style, self-concept, interest pattern, and scholastic pattern. (2) The above factors were good predictors of DT. (3) There was a significant difference between field-dependent and field-independent cognitive style on the criterion of DT. (4) There were unique constellations of cognitive and affective correlates of DT existing in terms of common factors. [PDR 0631]

Purankar, D.Y. and Patwardhan, Vanita. 1991. **Assessment of thinking processes and creativity of rural women.** Independent study. Pune: Jnana Prabodhini Institute of Psychology. [ERIC Funded]

Problem: This study addresses itself to assessing the thinking processes and creativity of rural women. Even though educationally at a disadvantage, one must know that rural women are able thinkers and are also creative. It is, therefore, necessary to assess their thinking through some techniques that do not require literacy.

Objectives: (i) To explore and assess concept-formation, reasoning, decision-making, problem-solving and creativity among illiterate rural women, and (ii) to tap the developmental trend of the above-mentioned thinking processes.

Methodology: One hundred and seventeen illiterate women drawn from rural areas of Pune District in Maharashtra, in the age-range of 20 to 35 years, formed the sample of the study. These women belonged to the lower-middle (LM) and middle-middle (MM) socio-economic groups. The tools used were Personal Data Sheet, Literacy Test, Classifying Objects, Game of Twenty Questions, Decision Making, Pass Along Test, Questionnaire, and Circle Test (Oral). Mean, skewness values, intercorrelations of group performances, and intercorrelations of individual performances, were used to analyse the data.

Major Findings: (1) The distribution of scores on concept-formation, reasoning, decision-making, problem-solving and creativity was normal. (2) The above-mentioned thinking processes seemed to be independent of each other. (3) The groups of the sample based on personal information variables, such as, socio-economic status, age, family type, etc., did not differ significantly from each other on concept-formation, decision-making and problem-solving. (4) Concept-formation strategy was not correlated with any of the thinking processes. [VKR 1208]

Raina, M.K. 1989. **An intensive study of the accomplishments of National Science Talent Scholars.** Independent study. National Council of Educational Research and Training. [ERIC Funded]

Problem: The present research aims at understanding to what extent the "most prestigious and popular talent search programme in India, the National Science Talent Search (NSTS) was successful in attaining its objectives of stimulating scientific talent that could help in building up a body of future scientists who may contribute to scientific advancement both in the pure and applied fields".

Objectives: (i) To inquire if those, who were identified as talented, exhibit talented performance, mature achievements and talented accomplishments and to determine the areas in which they have accomplishments, (ii) to study the value and belief system, world-view and life experiences of the talented, (iii) to provide information on the values, health, physical condition and general state of well-being, institutional climate and value-orientation and mental-relationships of the talented, (iv) to provide information about the nature of the present job undertaken by the talented and the responsibilities involved, etc., (v) to study the perceptions of the group about the National Talent Search Scheme and their suggestions for identifying and nurturing talent, and (vi) to know the perceptions of those talented residing abroad and the possibility of their return to the country.

Methodology: The sample of the study comprised 130 subjects, covering 90 male and 40 female awardees of the NTS scholarship in 1964 and 1965. The relevant data were collected using a Questionnaire. Mean, SD, ANOVA and rank order coefficient of correlation were used for the analysis of data.

Major Findings: (1) There was hardly any difference in the average age of the groups. (2) Of the 130 subjects, 75% had either one or two children each; almost 17% had no child; and 8% had three children. (3) 53% out of the total 130 had liberal political views; 90% had conservative views; and 5% had radical political views. (4) None of the subjects suffered serious deprivation or

came from very poor homes. (5) Almost 45% of the subjects had fathers who were engaged in higher-level occupations; the fathers of 20% were service workers; those of almost 11% were businessmen; and those of 13% remained unclassified. (6) The three qualities most valued by their parents were: 'doing well in school', 'being obedient' and 'showing initiative and consideration for others'. The three least valued qualities were: 'being strong and aggressive', 'doing well in sports', and 'being imaginative'. (7) Most of the subjects at different stages of life were very healthy or fairly healthy. (8) As regards high school performance, all subjects had performed at the higher level as most of them had scored more than 60% marks. Most subjects obtained distinction at the higher secondary level. (9) At graduate level basic-science subjects and also doctors had not scored a high percentage; engineers had shown a relatively superior performance. (10) Doctorates in the basic sciences performed relatively better than the other groups at P.G. level. (11) Mostly, talented students never occupied any position in the student unions. They were not interested in becoming members of clubs, etc. (12) Many of the talented received prestigious awards (gold, silver medals) at various levels. (13) Around 64% of the total number of subjects indicated that the institutional work was trivial and restricting. However, the talented, on the whole, felt comfortable with the climate of the institution where they studied. (14) Talented subjects were found to show the authoritarian value-system. (15) All the five talented groups scored significantly higher than creative musicians on the Intellectual Control Scale. [MSG 1157]

Ray, T. 1989. **A comparative study of a few personality characteristics of creative minds in arts and science and their parental relationship during childhood.** Ph.D., Edu. Univ. of Calcutta.

Problem: This study addresses the problem of comparing a few personality characteristics of creative minds in arts and science and their parental relationship during childhood.

Objectives: (i) To see if the manifestly creative people have more wish to be loved than the manifestly non-creative people, (ii) to see if there is any difference between the manifestly creative people and manifestly non-creative people in their conformity and non-conformity, (iii) to measure quantitatively the masculine and feminine traits in the manifestly creative and the non-creative groups, (iv) to study whether the manifestly creative people show any neurotic tendencies or whether they are mentally as healthy as the manifestly non-creative people, (v) to measure the parental love and aggression experienced by the manifestly creative group in childhood compared to the non-creative group, and (vi) to find out how creative people differ in a significant manner from non-creative people.

Methodology: The sample comprised the following three groups: (i) Thirty men and thirty women in the field of scientific creativity, selected from the two leading research institutes in Calcutta which devote themselves to higher research in the field of physics, chemistry and mathematics, (ii) Thirty men and thirty women in the field of visual arts who had passed with credit from the Government College of Art and Craft 10 to 15 years before, (iii) Thirty men and thirty women who had not manifestly displayed creativity in the field of science, art or even music formed the control group. The manifestly non-creative were randomly selected from among 564 cases. The tools used were Father's Love (FL) and Father's Aggression (FA), Mother's Love (ML) and Mother's Aggression (MA), Masculinity and Femininity Inventory, Conformity-non-Conformity Inventory, F Inventory (Neurotic Traits), and (ii) the Inventory (Wish to be Loved), all the above by Das Gupta. Mean, SD, 't' test, chi-square, frequency distribution, and percentage correlation were used for the analysis of data.

Major Findings: (1) Parental love experienced by the scientific-creative group was positively less than in the case of the manifestly non-creative group. There was a statistically significant difference between the male scientist group and the male non-creative group. As far as father's aggression was concerned, the female scientist group was more aggressed by their parents than any other group. This difference was statistically significant. In case of mother's love (ML) both male and female groups experienced less mother's love than the non-creative male and female group. But the scores of mother's aggression (MA) were at par in case of both the groups. (2) On parental love the creative visual artist group was positively less than the manifestly non-creative group. In case of inventory FL and ML, both the visual artist male and female groups secured less parental love than the non-creative group. Their mean difference was significant. But in case of parental aggression of the male and the female visual artists groups and the non-creative group, the mean difference was very little. There was a significant difference between the male visual artist and the male non-creative group. (3) There was a significant difference in the case of both the creative groups (scientist and visual artist) as compared to the manifestly non-creative group. Female creatives, both in case of scientists and visual artists, were more masculine than the manifestly non-creative women. The female creative groups were less feminine than the manifestly non-creative females. The femininity was much more in the case of creative males as compared to the manifestly non-creative group; and again, it was much more pronounced in the case of visual artists. (4) The creative groups, both scientist and visual artists, showed less conformity than the manifestly non-creative groups. This was true in the case of both male and female subjects. (5) There was a significant difference between the normal and the two creative groups. (6) The creatives and the manifestly non-creatives did not differ much in mental health. [KCP 0395]

Reddy, Mahender S. 1989. **The development of reasoning and creativity among the standard IX students.** M.Phil., Edu. *Annamalai Univ.*

Problem: This study deals with the development of reasoning and creativity.

Objectives: (i) To construct a battery of reasoning tests (BRT) for the students of Standard IX, (ii) to find out whether there is any significant difference: (a) on reasoning ability, between Standard IX boys and girls, and between private and government schools, and (b) on creative thinking, between boys and girls, and between private and government schools, and (iii) to find out whether there is any relationship between reasoning and creativity.

Methodology: Four hundred pupils from 20 government and private schools of Hyderabad City formed the sample of the study. The tools used included a Battery of Reasoning Test developed by the investigator, and the Non-verbal Test of Creativity by Baqer Mehdi. Mean, SD, correlation, analysis of variance, and percentiles were used for the analysis of data.

Major Findings: (1) The private and government school students differed significantly in favour of private school students on reasoning ability. (2) The government and private school students differed significantly on creative thinking in favour of private school students. (3) The boys from private schools were better than boys from government schools in reasoning ability. [MDa 1393]

Reddy, Sudhakara Y. 1990. **An investigation into the creativity of adolescent boys and girls.** Ph.D., Edu. *Sri Venkateswara Univ.*

Problem: The investigation aims at analysing the creativity of adolescent children in relation to certain variables like sex, locality, length of schooling, personality traits, mental ability, SES, etc.

Objectives: (i) To find out whether boys and girls differ in their creativity, (ii) to find out

whether urban and rural children differ in their creativity, (iii) to find out whether creativity is affected by differences in length of schooling, and (iv) to find out whether high and low creatives differ in their personality characteristics, intelligence, SES, certain familial variables, and personal characteristics and habits of life.

Methodology: Nine hundred children belonging to Classes VIII, IX, and X served as the sample of the study. The tools used were a Creativity Test Battery by Venkata Rami Reddy, Raven's Progressive Matrices, S.V. Socio-economic Status Scale, High School Personality Questionnaire (HSPQ) by Cattell and a Personal Data Sheet. Analysis of variance, 't' test, and chi-square were used for the purpose of analysis of data.

Major Findings: (1) In case of verbal tests, urban children were found to be more creative than rural children. (2) There was a significant difference between the creativity of Classes VIII, IX and X children. Each group differed from the other. (3) Though boys scored better than girls, the difference between means was not significant. Similar results were obtained for all the three components of creativity, viz. fluency, flexibility, and originality and composite creativity. (4) In the case of non-verbal tests, boys scored significantly better than girls. (5) There was a significant difference between the creativity of Classes VIII, IX and X children. Each group differed from the other. Similar results were obtained for all the components of creativity and composite creativity. (6) Rural children tended to score better than urban children on all the components. The difference between means was significant in the case of flexibility, originality and composite creativity but not in the case of fluency. (7) When creativity as measured by both types of tests put together, was analysed, it was found that (a) there was a significant increase in the creativity of children from Classes VIII to IX and IX to X and this was true for all the components of creativity; (b) boys scored better than girls but the difference between means was significant only

in the case of fluency; (c) similarly, urban children scored better than rural children, but the difference between means was, however, significant in the case of fluency only. (8) High and low creatives (drawn from the whole group) were differentiated by all the personality factors except Q_4 , as measured by the HSPQ. High creatives scored higher on factors B, C, F, G, H, I, J, Q_2 and Q_3 , while low creatives scored higher on factors A, D, E and O. (9) When the analysis was carried out separately for different subgroups (boys-girls, urban-rural children, and children of Classes VIII, IX and X) slight differences in the pattern cited above were seen. (10) There was a significant difference between: (a) the mental ability, and (b) SES of high creatives and low creatives in favour of the former group. This was true for all the subgroups of children. (11) Compared to low creatives a larger percentage of high creatives: (a) tended to do things in an unconventional way; (b) read story books, magazines, etc. more frequently; (c) had a better general state of health; (d) tended to come from nuclear families, and (e) perceived a close affinity between the members of the family. (12) High and low creatives did not differ on (a) the frequency with which they got silly ideas, (b) the number of friends they had, (c) the liberty given by parents in doing things, (d) the frequency with which they were punished by their parents for their mistakes, and (e) order of birth. (13) Multiple regression analysis showed that about 37% of the variance in creativity was predicted by the different independent variables included in the study. [AVRR 1258]

Roy, Bina. 1990. **A study on verbal creativity, general anxiety and self-concept as predictors of creative reading ability of students.** Ph.D., Edu. Univ. of Kalyani.

Problem: This study attempts to enable teachers to encourage creative reading ability in students, as that alone can liberate their minds from the overwhelming influence of the printed material all around them. Convergent thinking

will not help them in the matter. Instead, divergent and original thinking are needed. But there are many variables which influence the development of creative reading ability. The researcher investigates the influence of a few of them.

Objectives: (i) To ascertain the creative reading ability of students with the help of a standardised CRA test, (ii) to appraise the extent of self-concept and general anxiety of the students with the help of two weighted scales in the two dimensions, (iii) to find out sex-wise differences, if any, in the CRA test, (iv) to determine the relationship between the creative reading ability of the students and the independent variables stated above in (iii), and (v) to develop a regression equation of the CRA of the students on the determinants identified in the study.

Methodology: Students of Class VIII of 15 schools in Calcutta and in rural areas formed the sample of the study. The tools used were Creative Reading Test (CRT), Self-concept Questionnaire (SCQ), General Anxiety Neurosis (GAN), and Verbal Creativity (VC).

Major Findings: (1) Boys did not show better creative reading ability (CRA) than girls, while urban students showed better in CRA as compared to rural students. (2) Boys did not show better self-concept than girls. (3) Rural students did not show better self-concept than the urban students. (4) Boys exhibited less anxiety than girls. (5) Creative reading ability and self-concept were found to be significantly correlated. (6) There was a positive correlation between the scores obtained by the students in the CRA test and the VC test. (7) There was a negative correlation between GAN and VC. (8) Creative reading ability could be predicted from SCQ, GAQ, and VCT. [PDR 0641]

Roy, D.K. 1990. **Personality differentials of adolescents with scientific creativity in relation to environment.** Ph.D., Edu. Univ. of Delhi.

Problem: The present study tries to find out the determinants and correlates of scientific creativity among adolescents.

Objectives: (i) To study the difference between the low and high scientifically creative adolescents on various dimensions of creativity based on the S.I. model of Guilford, (ii) to study personality differences between low and high scientifically creative adolescents in terms of Cattell's trait theory, (iii) to examine the perception of the home environment (different dimensions) by low and high scientific creative adolescents, and (iv) to examine the perception of the school environment (different dimensions) by low and high scientifically creative adolescents.

Methodology: Two hundred students of +2 level from nine private and government schools formed the sample of the study. The tools used were Scientific Creativity Test (MSCT) developed by Majumdar, Jr. Sr. High School Personality Questionnaire (Form A) by Cattell, and questionnaires to measure perception of home and school environment. Descriptive and inferential statistics were used for the analysis of data.

Major Findings: (1) Lower Scientific Creativity (LSC) and Higher Scientific Creativity (HSC) groups differed significantly on all the three parameters of structure of intellect model. The HSC group was found to be better than LSC group on these parameters. (2) HSC adolescents differed markedly from the LSC adolescents in terms of most of the personality traits. (3) Both the groups differed significantly, so far as perceived impacts of home and school environment were concerned. [RDM 0351]

Sahoo, P.N. 1990. **Creative performance of reflective-impulsive Grade VIII children of a school of integral education: An empirical study.** M.Phil., Psy. Utkal Univ.

Problem: This study focuses on the problem of creative performance of reflective-impulsive

Grade VIII children of a school of integral education.

Objectives: (i) To study differences in the performance of reflective and impulsive children on various measures of creativity, (ii) to study the relationship between matching familiar figure test (MFFT) performance and creativity.

Methodology: Sixty children of Grade VIII from the Institute of Integral Education, Bhubaneswar formed the sample of the study. The tools used were: Matching Familiar Figure Test (MFFT) by Cairns and Cammocko, Progressive Matrices (RPM) by Raven, and the Creative Achievement Test marks of the test examination of the children in painting, handwork, music, and physical education taken from the school record. Mean, covariance and correlation-coefficient were used for the analysis of data.

Major Findings: (1) There was a negative but significant relationship between Matching Familiar Figure Test errors and Matching Familiar Figure Test latency. As errors increased the latencies decreased, and vice versa. (2) There was a significant difference between reflective and impulsive children on Raven's Progressive measures. The reflective children scored higher on the RPM measure as compared to the impulsive children. (3) There was no significant difference between the scores obtained by the reflective and impulsive children on painting and handwork, music and physical education. (4) The correlational analysis showed that the RPM score and MFFT latencies had a moderate positive correlation with painting, music, and physical handwork. MFFT error had negatively related with all the above subjects except with handwork. [KCP 0418]

Santhana, Krishnan S. 1990. **A study of creativity in relation to some selected variables.** Ph.D., Edu. Annamalai Univ.

Problem: It is programmed to study the creative powers of pupils studying in Standards

IX, X, and XII of higher secondary schools and their relationship with twelve variables, namely, birth order, age, sex, intelligence, anxiety, personality traits, values, scholastic achievement, standards and parents' education, occupation, and income, as these factors are found to be affecting or promoting creativity.

Objectives: (i) To assess the creative abilities of pupils studying in Standards IX, X, XII of higher secondary schools, (ii) to find out the relationship between creativity and demographic variables such as age, sex, birth order, and parents' education, occupation and income, (iii) to find out the relationship between creativity and cognitive variables, such as verbal intelligence, figural intelligence and scholastic achievement, (iv) to find out the relationship between creativity and affective variables such as values, anxiety and a personality traits (extraversion-introversion type), (v) to find out the relationship between creativity and demographic, cognitive, and affective variables (multiple correlation), (vi) to find out the possible principal component factors of creativity and their psychological interpretation (Principal Components Analysis), (vii) to investigate the discriminant variables which discriminate the high creative and low creative group of subjects (Discriminant Function), and (viii) to find out the highest attainable relationship between a linear set of composite criterion variable (creativity) and a linear set of composite predictor variable (Intelligence, Canonical Correlation).

Methodology: Five hundred pupils studying in all the higher secondary schools of the four educational districts in Tamil Nadu State formed the sample of the study. The tools used were Verbal and Non-verbal Creative Thinking Test by Baqer Mehdi, Standard Progressive Matrices by Raven, Group Test of Intelligence by Ahuja, Anxiety Scale, Value Scale, Extraversion-Introversion Inventory and Personal Questionnaire constructed by the researcher. Descriptive, differential, correlational, discriminant, and path analysis along

with multivariate techniques were used for the analysis of data.

Major Findings: (1) Birth order, types of schools, grade levels, and age have been found to have a relationship with creativity. (2) Educational qualifications, level of occupational categories and income groups of parents had a positive relationship with creativity. (3) Anxiety level of the subjects had a relationship with creativity. (4) Subjects of normal anxiety scored the maximum on figural and total creativity. (5) Low-anxiety subjects secured the maximum mean score of verbal creativity. (6) Extraversion and introversion have shown a significant relationship with three types of creativity scores. (7) Aesthetic values were related with figural and total creativity. Theoretical values were positively related with figural creativity and negatively related with verbal creativity. (8) Figural creativity was related with composite intelligence, verbal intelligence and scores on Raven's Progressive Matrices. (9) Extraversion, aesthetic values, economic values, and social values differentiated high- and low-creative groups. (10) Factor analysis resulted in four component factors, namely, verbal creativity, figural creativity, modern values, and academic achievement. [MDa 1391]

Setia, Paramjeet. 1989. **Self-concept, values and adjustment of creative students (high and low) of different faculties.** Ph.D., Edu. Agra Univ.

Problem: This is a study of the self-concept, values and adjustment of creative students of different faculties.

Objectives: (i) To compare the self-concept scores of high and low creative students within and between faculties, (ii) to compare the value scores of high and low creative students between and within faculties, and (iii) to compare the adjustment scores of high and low creative students within and between faculties.

Methodology: One thousand students from

different degree colleges formed the sample of the study. The tools used were Verbal Test of Creative Thinking by Baqer Mehdi, Self-concept Inventory, Value Test by R.P.Bhatnagar, and Adjustment Inventory by Sinha and Singh. Mean, SD, and 't' test were used for the analysis of data.

Major Findings: (1) High and low creative students of different faculties did not differ significantly on the various dimensions of self-concept. (2) No difference was found among high creative students of different faculties on the scores on withdrawing tendencies and feeling of inadequacy dimension of self-concept. (3) Low creative students of different faculties did not differ among themselves regarding emotional instability, withdrawing tendency and feeling of inadequacy dimensions of self-concept. (4) High and low creative students of different faculties did not differ significantly on the social value scores and economic value scores. (5) High creative students of different faculties differed significantly on their scores on social value, political value, religious value, theoretical value, economic value, and aesthetic value. (6) Low creative students of different faculties did not differ significantly regarding social and political value scores, while for other values significant difference was found among different faculties. (7) High and low creative students of all the faculties did not differ significantly regarding the different dimensions of adjustment, except for the health adjustment scores of high and low creative students of the faculty of commerce. (8) The high creative students of different faculties did not differ among themselves in respect of different dimensions of adjustment, except in the case of the emotional adjustment scores of science and art faculties. (9) Low creative students of different faculties differ significantly regarding scores on various dimensions of adjustment. [SS 0822]

Shair, Bilqies. 1988. **A study of creative thinking among boys and girls in relation to socio-economic status.** M.Phil., Edu. Univ. of Kashmir.

Problem: This study concentrates on creative thinking among boys and girls in relation to their socio-economic status.

Objectives: (i) To find out the relationship between creativity and socio-economic status at different levels (high/low), and (ii) to find out the difference in creativity with respect to sex.

Methodology: Two hundred subjects (100 boys and 100 girls) in the age-range 14-16 years from twelve schools formed the sample of the study. The tools used were Verbal Test of Creative Thinking by Baqer Mehdi, and Socio-economic Status Questionnaire by Kapoor. Mean, SD, 't' test and product-moment coefficient of correlation were used for the analysis of data.

Major Findings: (1) Creativity and SES were positively related. (2) Boys and girls belonging to the same level of SES did not differ significantly on the three components of creativity, viz., fluency, flexibility and originality. (3) No gender differences were found to exist in creativity. (4) Boys with high SES and low SES were found to be different on fluency and flexibility. However, in the originality scores, the differences failed to reach any level of significance. [AGM 1858]

Shan, Hans Raj. 1989. **Effectiveness of certain curricular activities in the development of creative thinking of high school students of the backward hilly region of Jammu.** Ph.D., Edu. Himachal Pradesh Univ.

Problem: This study centres on the effectiveness of certain curricular activities in the development of creative thinking in the high school students of the backward hilly region of Jammu.

Objectives: (i) To develop verbal and non-verbal tests of creative thinking, (ii) to study the effect of teaching through the curricular activities of brainstorming, problem-solving, project activity, and quiz in comparison to the traditional method of teaching, on the verbal fluency, verbal flexibility, verbal originality, and total verbal creative thinking of students, (iii) to study the

effect of teaching through brainstorming, problem-solving, project activity and quiz in comparison to the traditional method of teaching, on the elaboration, non-verbal originality and total non-verbal creative thinking of students, (iv) to study the effect of teaching through brainstorming, problem-solving, project activity, and quiz in comparison to the traditional method of teaching, on the total creative thinking of students, (v) to compare the effect on the verbal fluency, verbal flexibility, verbal originality and total verbal creative thinking of four groups of students following brainstorming, problem-solving, project activity, and quiz activity, (vi) to compare the effect on the elaboration, originality and total non-verbal creative thinking of the four groups of students in terms of their mean scores following brainstorming, problem-solving, project activity, and quiz activity, and (vii) to compare the effect on the total creative thinking of the four groups of students following brainstorming, problem-solving, project activity, and quiz activity.

Methodology: Out of 266 high school students studying in Grade IX in four high/higher secondary schools for boys in Kishtwar Town of Doda District of Jammu and Kashmir State, 100 students formed the sample for the study. The tools used were Verbal and Non-verbal Tests of Creative Thinking prepared by the investigator, Standard Progressive Matrices by Raven, and Socio-economic Status Scale Questionnaire. Analysis of covariance, and 't' test were used for the analysis of data.

Major Findings: (1) The groups of students who were taught science using various curricular activities, namely, brainstorming, problem-solving, quiz and project activity, gained significantly in verbal fluency, verbal flexibility, verbal originality, elaboration, non-verbal originality, total non-verbal originality, total non-verbal creative thinking, and total creative thinking (verbal and non-verbal) as compared to the groups taught by the traditional method of teaching. (2) Brainstorming was found to be

significantly more effective in comparison to the use of problem-solving, quiz and project activity in the development of verbal fluency, verbal flexibility, non-verbal originality and total (verbal and non-verbal) creative thinking. (3) Quiz and problem-solving were found to be almost equal, but more effective in comparison to the use of project activity in developing verbal flexibility. (4) Brainstorming and quiz were more or less equally effective as compared to project activity. (5) Students taught through quiz gained significantly in verbal creative thinking in comparison to the students taught by using project activity. (6) Brainstorming and problem-solving activities were of the same magnitude in the development of non-verbal elaboration but significantly higher in comparison to the use of project activity. (7) Problem-solving, quiz and project activity were found to be equally effective in the development of non-verbal originality. (8) Brainstorming and problem-solving were found to be equally effective but significantly more in comparison to quiz and project activity in the development of non-verbal creative thinking. (9) The curricular activities of problem-solving and quiz were found to be equally effective, though significantly more so in comparison to the use of project activity in the development of total creative thinking among the high school students. [LK 0240]

Sharma, Girja Shanker. 1988. **Creativity: An investigation into personality correlates.** Ph.D., Edu. Agra Univ.

Problem: This study is an investigation into the personality correlates of creativity.

Objectives: (i) To study creativity in terms of its components, and (ii) to determine the self-concept, values, need, and personality factors of adolescents in relation to fluency, flexibility and originality.

Methodology: Two hundred and fifty college-going girls of middle socio-economic status studying in different colleges of Aligarh City formed the sample of the study. The tools used

were Verbal Test of Creative Thinking by Baqer Mehdi, Your Choice (*Apki Pasand*) by R.S Tripathi, Values by R.K.Ojha, and Cattell's 16 Personality Factors Questionnaire (Form A) prepared in Hindi by S.D. Kapoor.

Major Findings: (1) On the basis of empirical verification of the null hypotheses of the study, it was found that when the adolescents were imbued with high or less creativity components (i.e. fluency, flexibility and originality) they had clear perceptions about their values, self-concept, needs and personality factors. (2) Each component of creativity had its own orientation and should be studied separately to enhance our knowledge of the truth. [SS 0808]

Sharma, Parmesh Kumar. 1991. **The nature of creativity: Search for a viable concept for education.** M.Phil., Edu. Univ. of Delhi.

Problem: This is an attempt to study the nature of creativity in its philosophical, psychological and social domains in order to explore the intrinsic nature of the concept in the context of the process of education and to search a viable concept of creativity in the realm of education.

Objectives: (i) To review the significant developments and the prominent concepts and theories in all the three domains — philosophical, psychological, and social, (ii) to explore the nature of creativity with reference to certain issues of prime importance for education, and (iii) to search for a concept of creativity in the realm of education.

Methodology: The researcher based his study on the review of the available literature.

Major Findings: (1) The philosophical approaches render an explanation for the causal aspects of creativity and explore the metaphysical and cosmological nature of the process of creation. (2) The psychological theories of creativity aim at individualising the common mechanisms of the process and are mostly concerned with measures of creative potential.

(3) The social theories are concerned with an account of creative achievements. (4) In an attempt to comprehend the nature of creativity, one has to accept the three aspects — the creative person, the creative process and the creative product — with the physical, social and cultural environment. The relative importance is an issue. (5) There seems to be a criterion problem for creativity. There does not exist any specific framework in which the process of creativity is always intelligible, for along with the proceeding onward of the creative process, the framework also undergoes a change, and hence no specific criterion seems adequate to take note of every creative accomplishment. (6) A Rational Explanation of creativity is rarely possible. (7) Creativity is merely a possibility under a certain set of constraints and not a necessity. (8) The goals for the process of education are well-defined, whereas the creative process is free and diffuses the person along with it as it proceeds. (9) The process of education is a rational and intelligible process, whereas the creative process need not be always rational and may even have elements of serendipity in it. [RDM 0367]

Sharma, Samidha. 1992. **Perception of teachers about the personality traits of creative students.** Ph.D., Edu. Agra Univ.

Problem: The study focuses the opinion of different teachers regarding the personality traits of creative students.

Objectives: (i) To make a comparative study of the perception of teachers of pre-higher secondary, higher secondary and post-higher secondary and of other teachers (irrespective of stages) about the personality traits of creative students, and the perception of the experts on creative personality, and (ii) to find out the extent of agreement between the ranks given to the personality traits of creative students by the teachers of above stages and of experts on creative personality.

Methodology: Two hundred teachers of both sexes from all the three stages were selected as

the sample of the study. The Ideal Students' Check-list by Torrance was used as a tool. Mean, SD and 't' test were used for the analysis of data.

Major Findings: (1) Teachers of all the three stages perceived the personality traits of creative students in the same manner. The stage at which they are taught or their academic difference did not affect their perception. (2) Male and female teachers perceived the personality traits of creative students almost identically. (3) The perceptions of teachers of all the three stages varied from those of experts on creative personality. (4) Teachers tended to perceive those traits which were not favourable for creativity from the point of view of experts. [SS 1345]

Sharma, Shri Bhagwan. 1988. **Creativity in relation to self-disclosure, need-achievement and frustration.** Ph.D., Edu. Agra Univ.

Problem: The main focus of this study is to observe the relationship of creativity to some psycho-social variables and to compare the rural and urban, science and arts, and male and female creatives regarding these variables.

Objectives: (i) To find out the nature and extent of the relationship between creativity and self-disclosure for the various groups, (ii) to find out the nature and extent of the relationship between creativity and need achievement for various groups, and (iii) to find out the nature and extent of the relationship between creativity and frustration for the various groups.

Methodology: Two hundred rural (100 males and 100 females) and 200 urban (100 males and 100 females) students of Class X from the schools of Agra District formed the sample of the study. The tools used were Verbal Test of Creative Thinking by Baqer Mehdi, Non-verbal Test of Need Achievement by Prayag Mehta, and *Naireshya Meep* by Chauhan and Tiwari. Mean, SD, correlation, 't' test, regression and multiple-R were used for the analysis of data.

Major Findings: (1) Creativity was related to self-disclosure for TG, UG, UMG, and UFC having high scores on self-disclosure. (2) Creativity was related to need-achievement for RG and RFG having high scores on n-ach and for UG and RMG having low scores on n-ach. (3) Creativity was related to frustration for TG and RFG; it was related to frustration for UG; UFA had high scores on frustration; and UFG and RMS groups had low scores on frustration. (4) Rural and urban students differed significantly on their creativity, need-achievement, self-disclosure and frustration scores but the difference in regression scores for the various groups was not statistically significant. (5) Male and female students differed significantly on their creativity, self-disclosure, need-achievement and frustration scores but the difference for the fixation scores was statistically not significant. (6) Various groups of science and arts faculties differed significantly on their creativity, self-disclosure, need-achievement and frustration scores but the difference in the regression scores of the various groups was not statistically significant. [SS 0795]

Singh, Bhoodev. 1988a. **Development of tools for identifying creative thinking abilities among pre-school children for their education and proper personality development.** Independent study. Sultanpur: Kamla Nehru Institute. [ERIC Funded]

Problem: This study is concerned with the identification of the creative thinking abilities of pre-school children.

Objectives: (i) To develop verbal and non-verbal instruments to measure the creative thinking abilities of pre-school children, (ii) to determine whether there is any sex, culture, and age bias in the verbal and non-verbal tests, and (iii) to study the interaction effect of culture, age and sex on the creative thinking abilities of pre-school children.

Methodology: Seven hundred and ninety pre-school children of age-group 3 to 5 years selected

from the rural and urban areas of Sultanpur District formed the sample of the study. The tools used were *Shishu Srijanatmak Parikshan* Verbal and Non-verbal, and Hindi adaptation of Thinking Creatively in Action and Movement. Analysis of variance was used for the analysis of data.

Major Findings: (1) The content validity of the SSP (V) and SSP (NV) on both the tests was found to be high. (2) Convergent and discriminant validity of the SSP(V) test were found to be satisfactory. (3) Test-retest reliability coefficients of the traits and the total creativity scores were also found to be satisfactory. (4) There was no sex, culture and age bias in the SSP(V) and SSP(NV) tests. (5) The interaction effect of sex, culture, and age on the creative thinking abilities of pre-school children was not found to be significant. (6) The effect of pre-school education was found to be significant on the creative thinking abilities of Grade I children. (7) The effect of pre-school education was found to be significant on the creative thinking abilities of Grade I children. (8) Creativity reached a high point during the fourth year and declined in the fifth year. [Author 1340]

Singh, Bhoodev. 1988b. **Relationship between mathematical creativity and some biographical factors.** *Indian Educational Review*, Vol.23 (2):157-61.

Problem: The study addresses the problem of association of biographical factors with the creativity of a person.

Objective: To determine relationship between mathematical creativity (verbal, non-verbal and total mathematical creativity scores) and biographical factors, viz. family size (FS), birth order (BO), socio-economic status (SES), attitude (ATT), involvement in *laissez-faire* activities (ILA) and level of aspiration (LA).

Methodology: Two hundred and seventy-seven (165 urban and 112 rural) male students of Classes VII and VIII from one urban and one rural

intermediate college of Sultanpur District (UP) constituted the sample of the study. The tools used were Mathematical Creativity Tests (both verbal and non-verbal) developed by the investigator, and Biographical Inventory by Baqer Mehdi. Coefficient of correlation was used for the analysis of data.

Major Findings: (1) Mathematical creativity was significantly related to socio-economic status, perception about parents, interest patterns, attitude (for urban children only), involvement in *laissez-faire* activities (for rural children only), and level of aspiration. (2) Birth order and family size had no significant influence on mathematical creativity. [JPM 1402]

Singh, Bhoodev. 1988c. **Mathematical creativity and some socio-psychological factors of Hindus and Muslims.** *Indian Educational Review*, Vol. 23 (4):121-28.

Problem: This study addresses the problem of mathematical creativity among Hindu and Muslim boys with respect to their personality and biographical factors.

Objectives: (i) To compare Hindus and Muslims with respect to mathematical creativity, (ii) to compare Hindus and Muslims on the dimensions of personality factors, and (iii) to compare Hindus and Muslims on eight biographical factors.

Methodology: Two hundred and seventy-seven (165 urban and 112 rural) boys of which 37 urban and 41 rural were Muslims and the rest Hindus, were selected from one rural and one urban intermediate college of Sultanpur District of U.P. The tools used were Mathematical Creativity Test developed by the investigator, Thorndike's Dimension of Temperament Test (Hindi adaptation by the investigator) and Biographical Inventory developed by the investigator and Baqer Mehdi. Mean, SD, and 't' test were used for the analysis of data.

Major Findings: (1) Rural Hindus and Muslims

differed significantly with respect to their mathematical creativity. (2) Urban Hindus and Muslims did not differ from each other with respect to mathematical creativity. (3) Urban Hindus were significantly more sociable, ascendant and cheerful in their personality than urban Muslims. (4) Rural Hindus and Muslims did not differ from each other with respect to their personality. (5) Urban Hindus and Muslims differed significantly from each other with respect to socio-economic status, interest pattern, and level of aspiration. (6) Rural Hindus and Muslims differed significantly from each other with respect to birth order. [JPM 1423]

Singh, Ibotombi H. 1991. **A study of the vocational preferences of high creative and low creative high school tribal pupils in Kohima and Mokokchung districts, Nagaland.** Ph.D., Edu. North-Eastern Hill Univ.

Problem: This study focuses on finding out the vocational preferences and levels of creative thinking of Class IX students from the Ae and Angami tribes, and also on finding out the differences in vocational preferences between the high creative and the low creative among those students.

Objectives: (i) To identify the high creative and the low creative among the high school tribal students in Kohima and Mokokchung Districts, (ii) to compare the vocational preferences between the high creative and low creative among the Ae and Angami pupils, and (iii) to suggest ways to identify creative talent among Naga tribal students and to provide educational and vocational guidance to them.

Methodology: From 3,390 pupils, an initial representative sample of 1,000 students of Class IX from the Ae and Angami communities was used to generate a final sample of 320 pupils, (160 high-creative and 160 low creative pupils). The tools used were a Battery of Verbal and Non-verbal Tests of Creative Thinking called the Nagaland Tests of Creative Thinking (NTCT),

Vocational Prestige Scale, Personal Information Proforma, and an unstructured Interview. Mean, SD, and 't' test were used for the analysis of data.

Major Findings: (1) There was no significant difference between the Ae and Angami tribal high school pupils, both in their levels of creative thinking and their preference for prestigious vocations. (2) High creative pupils from both the tribal groups generally showed a preference for prestigious vocations. (3) No significant difference was found between boys and girls, as well as, between rural and urban pupils in their levels of creative thinking. [PPG 0184]

Singh, Kushal Pal. 1988. **A study of creativity in relation to achievement-motivation, personality needs and security-insecurity of secondary students of rural areas of Rajasthan.** Ph.D., Edu. Agra Univ.

Problem: The aim of the study is to compare the creativity scores of the high and low groups formed on the basis of achievement-motivation, personality needs and security-insecurity.

Objectives: (i) To test the significance of the difference of creativity scores of two groups categorised on the basis of achievement-motivation, personality needs and security-insecurity (high and low groups), (ii) to test the significance of difference of the creativity scores among the science and arts students, and (iii) to test the significance of the differences between the means of achievement-motivation, personality needs and security-insecurity among the science and arts groups.

Methodology: One thousand students of Class X studying in the higher secondary schools of three districts of Rajasthan formed the sample of the study. The tools used were Creativity Test by Chauhan, Achievement Motivation Test by Rao, Personality Need Inventory by C.P. Sharma, and Security-Insecurity Inventory by G.Tiwari. Mean, SD, and 't' test were used for the analysis of data.

Major Findings: (1) The students of the high achievement-motivation group were more creative than the students of low achievement-motivation group. (2) There was no difference in the creativity scores of the students having high and low personality needs. (3) There was no difference in the creativity scores of the students who felt secure or insecure. (4) Science and arts students differed significantly regarding their scores of creativity, achievement-motivation and personality needs, in favour of science students. (5) Science and arts students also differed regarding their scores of security and insecurity, in favour of arts students. [SS 0775]

Singh, Radha Charan. 1992. **A comparative study of scientific creativity, problem-solving and risk-taking in tribal and urban students.** Ph.D., Edu. Barkatullah Vishwavidyalaya.

Problem: The present research aims to develop a test of scientific creativity and find out the relationship between the creativity, problem-solving ability and risk-taking behaviour of tribal and non-tribal students.

Objectives: (i) To develop and validate a test of scientific creativity, problem-solving and risk-taking behaviour for children in the age-group of 12+ residing in Madhya Pradesh, (ii) to investigate the differences between tribal and urban students with respect to scientific creativity, problem-solving ability and risk-taking tendency, (iii) to investigate the sex differences with respect to scientific creativity, problem-solving ability and risk-taking tendency, (iv) to study the relationships between scientific creativity, problem-solving ability and risk-taking tendency, and (v) to study the factor structure for tribal student and for urban students with respect to the components of scientific creativity, problem-solving ability (with Greene's classification) and risk-taking in ten areas.

Methodology: Six hundred and fifty urban students formed the sample of the study. The tools used included Scientific Creativity, Problem-

Solving Ability, and Risk Taking Tendency — all developed by the investigator. Mean, SD, 't' test, F, and the Varimax technique of factor analysis were used for the analysis of data.

Major Findings: (1) Urban students were significantly better than the tribals in fluency, flexibility and originality. (2) Urban students were superior to tribals in all the levels of Greene's classification of problem-solving ability and risk-taking tendency. (3) There was no sex difference with respect to scientific creativity. (4) Girls were superior to boys in problem-solving ability. (5) Boys were superior to girls in risk-taking. (6) There was a significant relationship between scientific creativity and risk-taking; scientific creativity and problem-solving; and problem-solving and risk-taking. [JSP 1304]

Srivastava, R.K. 1988. **A study of needs in relation to creativity among high school pupils.** Ph.D., Edu. Hemwati Nandan Bahuguna Garhwal Univ.

Problem: Creativity is one of the most important human qualities. Creative pupils are the most valuable human resource because creativity involves originality which generates inventions. Therefore, creative pupils should be properly identified and nurtured. Hence, the teachers should know the desirable personality variables which play a significant role in developing creativity among the pupils. In this context, the teachers ought to be conversant with the desirable personality needs for developing the inherent creativeness among pupils.

Objectives: (i) To explore the relationship between need and creativity, and between need and the three components of creativity, viz. fluency, flexibility and originality, among high school pupils, and (ii) to identify the dominating needs associated with different components of creativity.

Methodology: Five hundred and forty high school pupils formed the sample of the study. The tools used included Standardised Intelligence

Test by P.N. Mehrotra, Personal Preference Schedule by Tripathi, and Verbal Test of Creative Thinking by Baqer Mehdi. Mean, SD and product-moment coefficient of correlation were used for the analysis of data.

Major Finding: In every case of boys and girls belonging to urban and rural locality there existed a difference among the fifteen-needs associated with fluency, flexibility, and originality components of creativity at high, average, and low levels of intelligence. [KBB 0543]

Srivastava, Sushila and Srilatha, R. 1992. **Impact of an enrichment programme to foster creativity among academically gifted elementary school children.** Independent study. Madras: J.B.A.S. Women's College. [ERIC Funded]

Problem: The study is aimed at determining the impact of enrichment on the mean creativity gain levels of elementary school students, with reference to age, sex and ordinal positions.

Objectives: (i) To identify the intellectually gifted children in some selected schools using both subjective and objective methods of evaluation and also to assess their creative abilities, (ii) to foster creativity among the gifted children through selective enrichment activities, (iii) to determine whether the enrichment activities have any impact on the creativity of the gifted children, and (iv) to study the effect of age, sex and ordinal positions on the improvement in the scores of creativity of the gifted children, due to the enrichment activities.

Methodology: Seventy gifted children from three schools of Madras City — twenty children in the age-group 7-8 years, thirty children in the age-group 9-10 years and twenty children in the age-group 11-12 years — formed the sample of the study. The tools used were Wechsler Intelligence Scale for children, Wallach and Kogan Battery of Creativity Instruments adapted by Parmesh and Enrichment Experiment to Foster Creativity in gifted students. Mean, SD, correla-

tion, and 't' test were used for the analysis of data.

Major Findings: (1) The enrichment activities affected sufficient improvement in the creativity levels of gifted students — both boys and girls. (2) There was a significant impact of sex differences on the creativity gain scores of gifted students — for both boys and girls. (3) The effect of ordinal positions on the creativity gain scores of gifted students, both boys and girls, was also significant. (4) There was significant correlation between IQ scores and creativity gain scores of gifted students — both boys and girls. (5) There was no impact of ordinal positions on the IQ levels of gifted boys and girls. (6) There was no impact of age-levels on the IQ levels of gifted boys and girls. [SKB 1217]

Sumangala, V. 1988. **Some psychological and social-familial correlates of creative behaviour among secondary school children.** Ph.D., Edu. Univ. of Kerala.

Problem: This study focuses on the identification of some psychological and social-familial variables as correlates of creativity among secondary school children.

Objectives: (i) To compare the three creativity groups (high-creative, average-creative and low-creative) in pairs in respect of each of the independent variables, (ii) to estimate the association of creativity with each of the independent variables for the three subgroups (based on creativity) and to compare the correlation coefficients of these three subgroups, (iii) to predict creativity in terms of the three best predictions from the group of psychological variables, and again from the group of social-familial variables, and to estimate the multiplier in terms of each of these two sets of three variables, (iv) to identify through factor analysis the psychological factors and social-familial factors possessing considerable loading of creativity and to isolate the psychological and social-familial variables present in each, and

(v) to compare separately the psychological and social-familial factor structures of the high-average – and low-creativity groups to see whether there is differentiation in the factor structures corresponding to the three creativity groups.

Methodology: Two hundred and sixty-two secondary school pupils (107 boys and 155 girls) from Standard IX formed the sample of the study. The tools used were the Kerala Verbal Test of Creativity by Nair and Sumangala, Kerala University Verbal Group Test of Intelligence by Pillai, Nair and Amma, the Kerala Non-verbal Group Test of Intelligence, the Kerala Socio-personal Adjustment Scale, the Kerala Masculinity-Femininity Scale, the Kerala Introversion-Extraversion Scale, the Kerala Self-concept Scale, Kerala Scale of Achievement Motivation, Kerala Examination Anxiety Scale, Kerala General Anxiety Scale, Kerala Socio-economic Scale, all by Nair, Family Integration Inventory by Abraham and Fernandez, and Scale of Attitude Towards Academic Work by Nair and Abraham. Mean, SD, 't' test, coefficient of correlation, multiple regression, and the principal-axis method of factoring correlation matrices were used for the analysis of data.

Major Findings: (1) The robust creativity-associated psychological and social-familial variables combining the results of two-tailed 't'-tests, r 's and high-creativity loaded factors indicated by factor analysis were the psychological variables and the social-familial variables. (2) The psychological variable 'self-concept' and the social-familial variable 'ordinal position in the family' had no association with creativity. (3) The psychological variables, 'examination anxiety' and 'general anxiety' had no negative relation with creativity. (4) The social-familial variable, 'family size', was negatively related to creativity. (5) The difference in the number of factors, nature of factors and the amount of variation in each suggested that the psychological factor structures as well as the social-familial factor structures of high-creative, average-creative, and low-creative groups were

different. The differing factor structures added evidence to the strong association between creativity and many of the select psychological and social-familial variables. [Author 0858]

Tripathi, S.N. and Shukla, M. 1990. **Development of instructional material for promoting creativity, and its effectiveness.** Independent study. *Bhopal: Regional College of Education.* [ERIC Funded]

Problem: The present study tries to address itself to developing instructional material for promoting creativity, and to see its effectiveness on the students' achievement as well as on their capacity for the development of creative thinking.

Objectives: (i) To find out whether creativity as measured by Torrance Tests of Creative Thinking (TTCT) can be increased by using creative methods of teaching biology, (ii) to find out whether as a result of being taught through creative methods, students show better achievement in problem-solving ability in biology, (iii) to prepare instructional material in biology for Class IX students which may help to promote creative thinking, (iv) to find out whether by giving greater scope to divergent thinking (fluency and elaboration) and imagination in the day-to-day teaching of biology, an improvement can be brought about in the 18 dimensions of TTCT, and (v) to find out the relative effect of the training programme on each of the 18 dimensions.

Methodology: Two groups — experimental and control groups — identified on the basis of pretesting involving intelligence, achievement in biology and creativity — formed the sample of the study. The tools used were Intelligence Test (culture fair intelligence test), Achievement Tests (two achievement tests in biology for Class IX) and Torrance and Ball Tests of Creative Thinking. Mean, median, SD, and factor analysis were used for the analysis of data.

Major Findings: (1) There were certain dimensions of creativity that could be developed through a training programme, however, there were

certain other dimensions which failed to register any noticeable impact of the training programme. (2) The training programme did not show any significant gains in terms of originality scores which are so crucial to creativity. [VKR 1185]

Also See

- Arora, R.K. 1992. **Interactional effect of creativity and intelligence on emotional stability, personality adjustment and academic achievement.** *Indian Educational Review*, Vol. 27(4):86-93. [HLS 1902] (See in Chapter 38.)
- Ashraf, Mohamed. 1988. **A case study of selected Delhi schools with special reference to innovative classroom practices.** Ph.D., Edu. *Jamia Millia Islamia*. [SPR 0598] (See in Chapter 24.)
- Bej, Jayprakash. 1991. **A comparative study between the students belonging to scheduled Castes and scheduled tribes including the Lodhas on general intelligence and creativity.** Ph.D., Edu. *Univ. of Kalyani*. [PDR 0625] (See in Chapter 30.)
- Bhagwat, Sunita A. 1992. **To prepare a package of divergent production type problems in mathematics and to study the effectiveness of the package against levels of intelligence and sex differences for Standard VIII students in Pune City.** Ph.D., Edu. *Shreemathi Nathibai Damodar Thackersey Women's Univ.* [AGB 1287] (See in Chapter 20.)
- Bhargava, Sunita. 1992. **Achievement motivation and creativity in relation to locus of control of socio-culturally deprived and non-deprived adolescents.** Ph.D., Edu. *Agra Univ.* [SS 1347] (See in Chapter 30.)
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