

Cognitive Processes

R.C. MISHRA

Behera, M. 1989. **Conservation ability of children: Effects of home environment and caste.** M. Phil., Psy. Utkal Univ.

Problem: This is a study of the conservation ability of children as influenced by home environment and caste.

Objective : To examine the impact of home environment variables and caste on conservation ability.

Methodology : The sample consisted of 80 Brahmin and Harijan primary school children belonging to a poor or an enriched home background. The children were divided equally into four subgroups. The criteria for determining poor or enriched home were P75 and P25 scores on a home environment measure derived from the analysis of a 70 minute interview with the mothers of the children. A conservation ability test was used as tool in the study, and descriptive statistics were used for the analysis of results.

Major Findings : (1) Children from an enriched home environment performed better on conservation tasks than those from a poor home environment. (2) Children belonging to the high castes group generally performed better on conservation tasks than those belonging to the low castes group. In other words, Brahmin children generally performed better than Harijan children on cognitive tasks. [KCP 0483]

Bharathi, K. 1988. **Causal thinking in Indian children.** *Indian Educational Review*, Vol. 23(3): 63-82.

Problem : This is a study of children's notion of causal thinking in terms of Piaget's theory.

Objectives: (i) To study the existence of pre-causal thinking in Indian children, and (ii) to study the stages of development in pre-causal thinking.

Methodology : The sample consisted of 110 children of 5, 8 and 11 years of age. They were drawn randomly from some corporation, government and public schools of South Delhi from four SES strata, namely lower, lower-middle, upper-middle and upper, which were determined on the basis of the education, occupation and income of the parents. The tools used were Piagetian tasks measuring the child's concepts of dream, life, origin of night, movement of clouds, and floating and sinking objects. Quantitative analysis was done on the basis of the classification suggested by Laurendeau and Pinard (1962).

Major Findings : (1) A developmental trend in causal thinking with increase in age was evident. (2) Five-year-old children were not found to be at the comprehension stage. (3) Eight-year-old children were found to be at the transactional stage, whereas eleven-year-old children were found to be at the logical thinking stage. (4) There

was evidence of the existence of pre-causal belief at lower age levels, which gradually disappeared at the higher age level. [HLS 1409]

Chhotray, B. 1989. **Effects of schooling on cognitive processes in self-developmental planning, future perceptions and dreams of Nolia children.** M. Phil., Psy. Utkal Univ.

Problem : The study attempts to examine the effect of schooling on cognitive processes in self-developmental planning, future perception and dreams of Nolia children.

Objectives : (i) To investigate the cognitive processes of schooled and unschooled Nolia children, and (ii) to compare schooled higher-castes children with Nolia children in terms of their future perceptions, self-developmental planning and dreams.

Methodology : Sixty children, consisting of 45 boys and 15 girls, participated in the present study. The selected children's age ranged between 10 to 12 years. Three groups were formed. Group 1 comprised 20 schooled Nolia children of the seashore areas of Puri town. Group 2 constituted 20 unschooled Nolia children from the same town. Group 3 constituted 20 high-castes schooled children. The Piagetian Clinical Interview Technique was used with open ended questions for collection of data, and descriptive statistics were computed to analyse the results.

Major Findings : (1) Schooling as a socialising force not only shaped the anticipation of future and the development of self, it also influenced the dreams of children. (2) The manner of future anticipation of schooled Nolia children was different from that of unschooled Nolia children. About 80 per cent of schooled Nolia children said that they were aspiring for government jobs. (3) All the unschooled Nolia children expressed their desire for occupations like rickshaw pulling, selling dry fish, or working as a daily wage earner or a sweeper. (4) With regard to self-perception, the schooled higher castes children were found

to be more ambitious than the schooled Nolia children, though the latter were more ambitious than the unschooled Nolia children. (5) The schooled higher castes children showed self-determination for achieving goals in future, and they differed considerably in self-perception, self-development, and also in dreaming, from both schooled and unschooled Nolia children. (6) The schooled higher-castes children were found to be more aspiring and confident of their progress than Nolia children. (7) The schooled higher-castes children could not report their dreams, but schooled Nolia children tried to remember the exact dreams of the last two weeks. (8) Unschooled Nolia children were ignorant of dreams. The dreams of schooled children reflected life and the situational context of these children. [KCP 0479]

Das, J.P. 1988. **The essence of human intelligence.** *Indian Educational Review*, Vol. 23(2): 32-46.

Problem: This is a study of the indicators of human intelligence beyond the classroom setting.

Objectives: (i) To study the cognitive activities of coding and planning, and (ii) to study the development of these activities in relation to schooling.

Methodology : Piagetian tasks for concrete operations and coding tasks were used as tools.

Major Findings : (1) On the performance of Piagetian and coding tasks, there was a significant main effect for age. (2) Schooling was found to be more advantageous for older children, than for the younger, though the schooled children in general, performed better than the unschooled children. (3) The prediction of school achievement from performance on simultaneous and successive tasks was low to medium, but it was non-existent from the planning tasks. (4) There was a weak correlation between school achievement (such as in reading and arithmetic) and the two types of information coding. [SKB 0744]

Dash, M. 1991. **Analysis of cognitive and speech related processes in relation to reading efficiency and IQ.** M. Phil., Psy. Utkal Univ.

Problem: The study attempts to analyse cognitive and speech-related processes in relation to reading efficiency and IQ.

Objectives: (i) To examine the cognitive and speech-related processing differences between good and poor readers, (ii) to compare the performance characteristics of high-IQ and low-IQ poor readers on cognitive-processing and speech-related tasks, and (iii) to examine the pattern of interrelationships among cognitive-processing and speech-related measures for the groups of good and poor readers.

Methodology: The sample consisted of 60 subjects of Grade III distributed equally into four groups: high-IQ good readers, low-IQ good readers, high-IQ poor readers, and low-IQ poor readers. The tools used were: the Graded Reading Comprehension Test of Mohanty and Sahoo, Matrix Analogies Test, Decoding Test, Selective Attention Test, Figure Memory Test, Serial Recall Test, Successive Ordering Test, Speech Rate Test and Sequence Repetition Test. Mean, SD, ANOVA and correlation were used for the analysis of data.

Major Findings: (1) Good readers were superior to poor readers in Name Match condition of selective attention, Figure Memory and Serial Recall. Major differences between good and poor readers were observed in verbal processing variables requiring either simultaneous or successive processing. (2) Poor readers were found to be deficient in speech-related processes. (3) Good readers and poor readers did not differ on any of the speech-related tasks. (4) The measures of attention, coding and speech rate showed high interrelationship for both good and poor readers. [KCP 0421]

Dei, S.L. 1991. **Interrelationship between non-verbal measures of cognition.** M.Phil., Psy. Utkal Univ.

Problem: This is a study of the interrelationship between non-verbal measures of cognition.

Objectives: (i) To examine how three different non-verbal measures of cognition relate to each other, and (ii) to study sex difference in performance on the three measures.

Methodology: The sample consisted of 50 Grade V, low-SES students in the age range of 9-11 years selected from a school in Puri. The instruments used were: Raven's Coloured Progressive Matrices, the Wechsler Digit Span Test, the Non-Language Test of Working Memory of Baddy and Hitch. Mean, SD, Homogeneity of Variance, and correlations were computed.

Major Findings: (1) There was no significant difference between boys and girls on the general intelligence test. (2) The relationship among the three measures was found to be positive and significant. [KCP 0420]

Dhaliwal, Varinder. 1988. **An experimental study of short-term and long-term memory as determined by distribution of practice, age, sex and sense modalities.** Ph.D., Edu. Panjab Univ.

Problem: The study attempts to examine the effect of age, sex, sense modality and distribution of practice on short-term and long-term memory.

Objectives: (i) To identify the phenomenon of short-term memory (STM) and long-term memory (LTM), (ii) to study the effect of age, sex, sense modalities and distribution of practice on STM and LTM, and (iii) to examine the relationship of intelligence with STM and LTM.

Methodology: The sample consisted of 240 male and female subjects of 12, 16 and 20 years of age. They were selected randomly. The tools used were: the Serial Learning Lists of Finkenbender and the Standard Progressive Matrices of Raven. Mean, SD, 't' test and analysis of variance were employed to analyse the results.

Major Findings: (1) Age and sense modalities were found to be significant determiners of STM and LTM. (2) Sex was not found to be a significant determiner of STM and LTM. (3) Subjects working under spaced-practice conditions did better only on LTM tasks in comparison to those working under the massed-practice conditions. (4) Intelligence was found to have a positive correlation with STM and LTM. [JNJ 0263]

Dixit, S. 1988. **Information processing. An analysis of the acquisition of learning.** Ph.D., Psy. *The Maharaja Sayajirao Univ. of Baroda.*

Problem: This is an attempt to study different structures and components of the strategies of acquiring and processing information, and the variance in strategies due to certain demographic factors.

Objectives: (i) To find out the various information-acquisition strategies, and (ii) to find out the relationship between information-acquisition strategies and certain demographic factors.

Methodology: The sample comprised 448 students of Grades X, XI and XII drawn from four English-medium schools of Baroda, using a cluster random sampling procedure. The tools used were: an Information Acquisition Inventory, a Schedule of Demographic Information, and Raven's Standard Progressive Matrices. Data were analysed using factor analysis, correlation, multiple regression analysis, analysis of variance, and 't' test.

Major Findings: (1) Eleven factors extracted from 35 strategies were found to represent the principal strategies of learning. These were: deep processing, elaborative processing, fact retention, information dependence, success dependence, prediction-orientation, organization-orientation, precision-orientation, knowledge of results, methodical study, and inferential measurement. (2) Performance in mathematics was found to be significantly related to deep-processing, while IQ was significantly related to success-dependence

and prediction-orientation factors. (3) Sex, birth-order and number of siblings were not associated with the selection of any particular learning strategy, whereas type of family, parents' education and income were found to affect the selection of learning strategies. (4) Selection of strategies was independent of students' IQ and achievement in mathematics, language or science subjects. [MSY 0908]

Donga, Kurjibhai M. 1989. **A study of memory and affecting variables of students studying in Standards VIII to XII.** Ph.D., Edu. *Saurashtra Univ.*

Problem: The study investigates the effect of certain personal and social variables such as age, sex, grade, family size and SES, etc., on memory.

Objectives: (i) To construct and standardise a memory test, and (ii) to study the effect of age, birth order, family size, SES, grade and sex upon memory of the students.

Methodology: The sample consisted of 1,575 boys and girls selected randomly from Grade VIII to Grade XII students of Rajkot city. A Memory Test constructed by the researcher and the Desai SES Scale were used as tools. ANOVA, 't' test and factor analysis were used for the analysis of results.

Major Findings: (1) Five factors were extracted from the factor analysis. These were: Numerical and Alphabetical memory, Picture Content Memory, Numbers of Alphabet and Association Memory, Figure and Colour Association Memory, and Symbol and Order Memory. (2) Age, birth-order and family-size exercised a significant influence on memory. (3) High SES was associated with superior memory. (4) There were differences in memory according to grades, but these were not systematic. (5) Sex did not affect the memory of students. [DAU 0009]

Dutt, Sunil. 1989. **The effect of problem-solving strategies on the problem-solving ability in science of high school students in relation to**

anxiety level, cognitive style and intelligence. Ph.D., Edu. Panjab Univ.

Problem: The study investigates the effect of problem solving strategies on problem-solving ability in science, and examines its relationship with certain cognitive and personality variables.

Objectives: (i) To study the effect of different problem-solving strategies on problem-solving in science, (ii) to examine whether a particular strategy of problem-solving would favour a particular level of intelligence, (iii) to study the relationship between a particular strategy of problem-solving with the anxiety level of the subjects, and (iv) to study the relationship of cognitive style with problem-solving ability among students.

Methodology : The sample comprised 300 students selected randomly from Class X from six government schools of Chandigarh. The tools used were: the Problem Solving Ability Test in Science of the investigator; the Group Embedded Figure Test (GEFT) by Witkin, Oltman and Raskin; the General Mental Ability Test by S. Jalota, and the Comprehensive Anxiety Test by Sinha and Sinha. Data were analysed using mean, median, SD, ANOVA, and multiple regression analysis.

Major Findings: (1) Strategies of problem-solving significantly affected the problem-solving ability of students. The focusing strategy was found to be superior to the scanning strategy. (2) High-intelligent students, irrespective of the strategies of training, scored higher on problem-solving ability test than low-intelligent students. (3) Field-independent students generally scored higher than the field-dependent ones on the problem-solving ability test. (4) Anxiety did not influence the problem-solving ability of students. (5) Cognitive style and intelligence were found to contribute significantly to the total variance in problem-solving ability; anxiety did not make any significant contribution. [JNJ 0289]

Garg, Kanta Prashad, 1988. **A factorial study**

of reasoning abilities at the age of 14+. Ph.D., Edu. Jamia Millia Islamia.

Problem: This study investigates the structure of reasoning ability of students of age 14+.

Objectives: (i) To identify a criterion for the grouping of students into heterogeneous and homogeneous samples, (ii) to identify the factors that may explain common variance in reasoning ability tests in the heterogeneous and homogeneous samples, and (iii) to study the variations in the factor patterns of reasoning ability in the two groups.

Methodology : The study was conducted on male students of 14+ age studying in Hindi-medium government senior secondary schools in South Delhi. On the whole, 37 tests were used, of which 10 were developed by the researcher. Analyses were carried out by computing correlation and factor analysis.

Major Findings: (1) Different factor structures of reasoning ability were identified due to variations in sampling criteria. (2) Differentiation of reasoning abilities took place around the age of 14+, and the differentiated dimensions of reasoning abilities were amenable to identification. [SPR 0602]

Gaysu, Arvind, 1988. **Alternative techniques of training children for development of concept conservation.** Ph.D., Edu. Univ. of Delhi.

Problem: The study examines the performance of conservation tasks as a result of Smedslund's Cognitive Conflict Training (SCCT), Bruner's Language Activation Training (BLAT) and Beilin's Verbal Rule Instruction Training (BVRIT).

Objectives: (i) To study the developmental stages characteristic of the course of conceptual development, and the order in which they emerge, (ii) to study the nature of the transition rule underlying the course of development, (iii) to study the process of acceleration in conceptual growth, and the limits imposed by maturation

upon it, (iv) to search out the most appropriate strategy to induce acceleration, and (v) to examine the authenticity of changes in performance produced by the acceleration technique.

Methodology: A pre- post-test equivalent group design was used in the study with four groups of subjects. Those receiving Smedslund's, Bruner's and Beilin's treatments represented the experimental groups; those not subjected to these treatments formed the control group. Sixty children between five and 7.5 years of age were randomly selected after pre-testing the level of their conservation, and were randomly assigned to one of the four conditions. Gain scores for each group were computed and chi-square test was used to treat the data.

Major Findings: (1) There was no significant relationship between the use of verbal and non-verbal assessment techniques and the acquisition of conservation of mass. (2) Non-verbal techniques were more sensitive in detecting the emergence of transitional conservation behaviour in comparison to verbal techniques. (3) The SCCT technique was effective in inducing conservation neither at the non-conservational level nor at the transitional level. (4) A significant relationship was found between BLAT and the proportion of non-conservers, transitional conservers and conservers. The technique was found to be more potent in improving the conservational status of non-conservers than in inducing conservation into transitional conservers. (5) A significant relationship was found between BVRIT and the proportion of non-conservers, transitional conservers and conservers. The technique appeared to be more potent in improving the conservational status of non-conservers. [RDM 0344]

Gopal, A.K. 1992. **Effect of stimulation on cognitive development of children between ages 3-6 years: A study.** Independent study. Lucknow: Regional Centre, NIPCCD.

Problem: The study attempts to explore

whether the early stimulation provided under the ICDS programme has any significant positive effect on the cognitive development of children between the ages of three to six years.

Objectives: (i) To study the differences in the cognitive development of children staying at home and those visiting Anganwadis, (ii) to study whether the quality of stimulation provided at Anganwadis, is significantly better than that available to children at home, and (iii) to suggest suitable ways and means of helping Anganwadi workers in providing optimum and effective stimulation programmes to children.

Methodology: The study was carried out in the Kakori rural ICDS project of Uttar Pradesh, which was selected randomly for this purpose. Ten Anganwadi Centres from among those listed under this project were selected randomly. The experimental group comprised 100 children drawn from the Anganwadi Centres. The control group comprised 100 village children who were not attending Anganwadi Centres. In both groups, the children's age ranged between four and five years.

Major Findings: (1) Children not attending Anganwadi Centres had comparatively larger families than the children attending Anganwadi Centres, the average family size being seven to eight and five to six members, respectively. (2) The educational status of the fathers in both the groups was almost equal. The educational status of the mothers was also almost equal for both the groups, with a vast majority (89% and 84%) being illiterate. (3) The occupational status of fathers showed similarity for both the groups, the majority being agriculturists and labourers. Similarly, the mothers of both groups were engaged in household activities. (4) The family-income profile favoured children not attending Anganwadi Centres. As many as 13 families of the non-ICDS group had an income level of Rs 1201 or more per month as against only one family of the ICDS group. (5) Facilities for play were non-existent in the families of both ICDS

and non-ICDS children; only earthen toys existed as play materials. Generally, the parents were unfamiliar with the relevance of toys to the mental development of children. (6) An overall analysis of data showed a similarity in the home environment of both the groups of children with a less encouraging attitude of the parents towards the children's cognitive development through early stimulation. [NS. 1045]

Gupta, P.C. 1990. **Contribution of memory and speed factors to the Intermediate examination scores.** Ph.D., Psy., Utkal Univ.

Problem: The study attempts to demonstrate the role of memory and speed factors in the marks obtained by students in various intermediate examinations.

Objective: To assess the contribution of memory and speed to the performance of college students in the Intermediate Arts and Science examinations.

Methodology: The samples for the present study consisted of 280 males and females drawn from the Arts and Science streams from the age-range 18.5 to 19 years. The tools used were: Wechsler's Adult Intelligence Scale (WAIS), Differential Aptitude Test (DAT), Verbal Reasoning Test and Culture Fair Intelligence Test (CFIT). Mean, SD, correlation and factor analysis were used for analysis of the data.

Major Findings : (1) A major portion of the performance in psychological measures and college examination was accounted for by factors of verbal reasoning, non-verbal reasoning, memory, speed, language competency, and rule learning. (2) Some dissimilarity in respect of a factor defined by subject areas specific to Arts or Sciences was evident. This was named as the "knowledge of humanities" factor for the Arts students, and the "knowledge of science" factor for the science students. (3) The examination performance of arts and science students in their respective courses did not yield the factors of memory and speed, while the performance of both

the groups in language subjects (e.g., English and Oriya) were significantly determined by the factors of language competence and rule learning. [KCP 0459]

Gupta, Sushma. 1991. **A study of deprivation in relation to certain cognitive and non-cognitive variables among adolescents.** Ph.D., Edu. Univ. of Jammu.

Problem: This research study attempts to study the effect of deprivation on certain cognitive and non-cognitive behaviours of adolescents.

Objectives: (i) To identify deprived and non-deprived adolescents of high and low socio-economic status, (ii) to find out significant differences in the personality traits and six areas of adjustment in the deprived and non-deprived adolescents, (iii) to know whether the deprived and non-deprived adolescents differ significantly in their intelligence, (iv) to study the differences in academic achievement of subjects showing deprived and non-deprived behaviour, and (v) to study the differences in creativity of subjects showing deprived and non-deprived behaviour.

Methodology: The sample comprised 1200 adolescents of 15+ years selected from the schools of Jammu. Intelligence, creativity and academic achievement were used as the cognitive variables; personality, motivation and neuroticism were used as the non-cognitive variables. The tools used were: Family Deprivation Questionnaire, Socio-Economic Status Scale, Multi-Dimensional Motivation Test, Multi-Dimensional Personality Inventory, General Mental Ability Test, Creativity Test, and Neuroticism Scale. Quintile deviations were used as criteria for the demarcation of students on family deprivation and socio-economic status variables. Analysis of variance was used to test the significance of differences.

Major Findings: (1) The students from a non-deprived home environment were found to be extrovert. (2) The students of high socio-economic status showed a high temperament. (3) Male students exhibited extrovert tendencies. (4) The

non-deprived students were more intelligent, more creative and more high achieving than deprived students. (5) The deprived students were over-protected, depressive, submissive and worried; however, they showed a high academic self-concept. [SPS 1275]

Jain, Manju. 1984. **Piagetian logical thinking among certain groups of adolescent pupils using a group test.** Ph.D., Edu. Univ. of Rajasthan.

Problem: The study attempts to investigate the logical thinking of adolescent pupils in a group setting, with Piagetian-type tasks.

Objectives: (i) To study logical thinking among adolescent pupils through Piaget-type paper-pencil tasks, (ii) to find out the effect of age, sex and typology of school on the performance of Piaget-type tasks, schemes of thought and total adolescent thought, (iii) to find out the effect of intelligence (non-verbal), linguistic abilities and personality traits on the performance of Piaget-type tasks, schemes of thought and total adolescent thought, (iv) to find out the relationship of performance on Piaget-type tasks, schemes of thought and total adolescent thought with non-verbal intelligence, linguistic abilities and personality traits, (v) to determine the interrelationship between different Piaget-type tasks and schemes of thought, and (vi) to find out the factor structure of the various tests and tasks used in the study.

Methodology: A sample of 980 boys and girls studying in higher secondary schools was randomly selected to represent the 11+ year to 16+ year age levels. The tools used were: Sixteen Piagetian-type Tasks, the Intelligence Test (non-verbal) Scale II by Cattell and Cattell, the Differential Aptitude Tests by Jha, and the High School Personality Questionnaire by Kapoor and Mehrotra. Mean, median, mode, SD, 't' test, analysis of variance and factor analysis were used as statistical techniques to test the hypotheses.

Major Findings: (1) Concrete thought showed a decreasing trend with age, the highest being at 11+ and the lowest at 10+. (2) The incidence of concrete thought was greater among girls and government school students than among boys and private school students, though most of the students from 11+ to 14+ were not able to reason formally. (3) The performance on tasks and schemes, and total adolescent thought, generally showed a developmental trend. (4) The schemes of classification, use of constant difference and combinatorial skills were fairly developed with age, while probability, proportionality and conservation of volume were not developed in accordance with age. (5) Private school students' performance was better than that of government school students. (6) Girls did better on classificatory reasoning and combinatorial skills, while boys did better on grasping the problem and proportionality. (7) All variables of adolescent thought were significantly correlated, except pre-operational thought with intelligence, linguistic ability and personality traits. (8) Factor analysis revealed two factors namely, 'total adolescent thought' and 'grasping the essence of the problem'. [JKS 0700]

Kar, B.C. 1989. **Studies of planning as a cognitive process: Theoretical and operational considerations.** Ph.D., Psy. Utkal Univ.

Problem: The study attempts to integrate the neuropsychological observations with cognitive constructs in current research in order to develop a comprehensive understanding of planning as a cognitive process.

Objectives: (i) To examine the developmental course of search and its relationship with naming, (ii) to examine the effect of naming practice on search, and (iii) to examine the effect of verbalisation on search.

Methodology: Three studies were conducted. For Study 1, 90 children from Grades V, VII and IX were selected. Studies 2 and 3 involved 120 and 28 subjects, respectively. The instruments

used were: Visual Search Test, Matching Number Test, Picture Naming Task, Letter Naming Task, Naming Attempt Rating Scale, Matching Strategy Test, Number Naming Task and Number Finding Task. Mean, SD and ANOVA were used for the analyses of data.

Major Findings: (1) Auto search was faster than controlled search. (2) Visual search performance improved as a function of age in both auto and controlled search conditions. The developmental level did not affect performance, on matching numbers. (3) The nature of stimuli influenced search performance, in that pictures took longer search time than letters. (4) Faster naming speed was related to faster matching of numbers, but it had no effect on visual search performance. (5) Strategy verbalisation during the pre- post- interval facilitated search performance. (6) Search latency was found to systematically increase as a function of the serial position of the element searched. (7) Search latency was longer for target-absent than for target-present trials. (8) Auto search was faster than controlled search in both pre- and post- test conditions. (9) Practice in naming of the stimuli used in search tasks did not influence search performance. [KCP 0391]

Kumari, Darshana. 1986. **Intellectual commitment and educational interest in relation to certain cognitive and non-cognitive variables.** Ph.D., Edu. Univ. of Jammu.

Problem: This is an attempt to study the intellectual commitment and educational interest of students in relation to certain cognitive and non-cognitive factors.

Objectives: (i) To study the nature of distribution of scores of seven areas of educational interest and intellectual commitment, (ii) to study the educational interest patterns of the students belonging to the various groups, (iii) to study the significant interactional effects with special reference to intellectual commitment and educational interest, (iv) to work out regression

equations for academic achievement of boys and girls using extraversion-introversion, socio-economic status, intellectual commitment, intelligence and adjustment as predictors, and (v) to find out the constituents which dominate the educational interest patterns of boys and girls, separately.

Methodology : The sample comprised 500 students of age 16+ from five districts of Jammu. The tools used were: Educational Interest Inventory, Intellectual Commitment Scale, Socio-economic Status Scale, Academic Achievement, Jalota's Group Test of General Mental Ability, Saxena's Adjustment Inventory, and Extraversion-Introversion Scale.

Major Findings: (1) All the groups showed a general liking for science, while girls and low achievers showed preferences for home science and the humanities. (2) A low level of father's qualification was found to be related to high intellectual commitment; on the other hand, low intellectual commitment was associated with higher level of father's qualification, high intelligence and high SES. (3) Students with high intellectual commitment were more interested in science than those with low intellectual commitment. (4) Students belonging to low SES showed greater intellectual commitment than students belonging to the average SES group. (5) There was no sex-difference in intellectual commitment. (6) Achievement in English had a significant positive correlation with interest in the humanities and in science in the girls' sample. (7) Achievement in mathematics was found to have a significant negative relationship with interest in home science in the boys' sample, and with agriculture, fine arts and home science in the girls' sample. (8) Intellectual commitment was found to have a significant positive relationship with interest in science for boys and with interest in the humanities for girls. (9) Intelligence and introversion were found to be the major contributors towards the academic achievement of boys, whereas intelligence and intellectual commitment were found to be the major

upon it, (iv) to search out the most appropriate strategy to induce acceleration, and (v) to examine the authenticity of changes in performance produced by the acceleration technique.

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Problem: The study attempts to demonstrate the role of memory and speed factors in the marks obtained by students in various intermediate examinations.

Objective: To assess the contribution of memory and speed to the performance of college students in the Intermediate Arts and Science examinations.

Methodology: The samples for the present study consisted of 280 males and females drawn from the Arts and Science streams from the age-range 18.5 to 19 years. The tools used were: Wechsler's Adult Intelligence Scale (WAIS), Differential Aptitude Test (DAT), Verbal Reasoning Test and Culture Fair Intelligence Test (CFIT). Mean, SD, correlation and factor analysis were used for analysis of the data.

Major Findings : (1) A major portion of the performance in psychological measures and college examination was accounted for by factors of verbal reasoning, non-verbal reasoning, memory, speed, language competency, and rule learning. (2) Some dissimilarity in respect of a factor defined by subject areas specific to Arts or Sciences was evident. This was named as the "knowledge of humanities" factor for the Arts students, and the "knowledge of science" factor for the science students. (3) The examination performance of arts and science students in their respective courses did not yield the factors of memory and speed, while the performance of both

the groups in language subjects (e.g., English and Oriya) were significantly determined by the factors of language competence and rule learning. [KCP 0459]

Gupta, Sushma. 1991. **A study of deprivation in relation to certain cognitive and non-cognitive variables among adolescents.** Ph.D., Edu. Univ. of Jammu.

Problem: This research study attempts to study the effect of deprivation on certain cognitive and non-cognitive behaviours of adolescents.

Objectives: (i) To identify deprived and non-deprived adolescents of high and low socio-economic status, (ii) to find out significant differences in the personality traits and six areas of adjustment in the deprived and non-deprived adolescents, (iii) to know whether the deprived and non-deprived adolescents differ significantly in their intelligence, (iv) to study the differences in academic achievement of subjects showing deprived and non-deprived behaviour, and (v) to study the differences in creativity of subjects showing deprived and non-deprived behaviour.

Methodology: The sample comprised 1200 adolescents of 15+ years selected from the schools of Jammu. Intelligence, creativity and academic achievement were used as the cognitive variables; personality, motivation and neuroticism were used as the non-cognitive variables. The tools used were: Family Deprivation Questionnaire, Socio-Economic Status Scale, Multi-Dimensional Motivation Test, Multi-Dimensional Personality Inventory, General Mental Ability Test, Creativity Test, and Neuroticism Scale. Quatile deviations were used as criteria for the demarcation of students on family deprivation and socio-economic status variables. Analysis of variance was used to test the significance of differences.

Major Findings: (1) The students from a non-deprived home environment were found to be extrovert. (2) The students of high socio-economic status showed a high temperament. (3) Male students exhibited extrovert tendencies. (4) The

contributors towards the academic achievement of girls. (10) The humanities and general science emerged as the main factors dominating the interest patterns of high school boys and (11) Commerce and the humanities emerged as the main factors dominating the interest patterns of high school girls. [SPS 1278]

✓ Kumari, Indira. 1990. **A study of development of logical thinking in pre-adolescents**. Ph.D., Edu. Maharshi Dayanand Univ.

Problem : The study attempts to examine the development of abilities of conservation of mass, weight and volume and of seriation and classification in relation to intelligence and SES.

Objectives: (i) To study the development of conservation of mass, weight and volume in relation to age, intelligence and socio-economic status, and (ii) to study the development of the ability of seriation and classification in relation to age, intelligence and socio-economic status.

Methodology : The sample consisted of 240 children stratified according to male-female and rural-urban levels. There were 120 rural and 120 urban children. The tools used were: Ravens' Coloured Progressive Matrices, the Socio-economic Status Scale by Kuppuswamy, and various types of Piagetian tasks. Chi-square was used for the analysis.

Major Findings : (1) There was generally an increase in the percentage of mass, weight and volume conservers with increase in children's age, but the increase was not very systematic suggesting that conservation of mass is not age-specific. (2) The child's age was a crucial factor in the development of the seriation ability, but, again, the development was not age-specific. The double-seriation ability depended on the attainment of the simple-seriation ability, and not on a particular age level. (3) Simple classification and double classification also did not show age-

specific development, though the double classification ability depended on the attainment of the simple-classification ability. (4) Children with high intelligence achieved conservation of mass, weight and volume earlier than those who were of low intelligence. (5) Children of high intelligence seriated and classified objects at an earlier age than those who were of low intelligence. (6) SES was not found to be a significant factor in the development of conservation of mass, weight and volume, and the development of abilities to seriate and classify objects. [DKC 0092]

✓ Kumari, Indira and Dagaur, B.S. 1992. **Piagetian concepts of conservation, seriation and classification in relation to intelligence**. *Indian Educational Review*, Vol. 27(4):73-85.

Problem : This is an attempt to study the relationship between intelligence and Piagetian concepts.

Objectives: (i) To study the development of conservation of mass, weight and volume with respect to intelligence, (ii) to study the development of the ability of seriation with respect to intelligence, and (iii) to study the development of the ability of classification with respect to intelligence.

Methodology : A cluster sample of 240 subjects, aged 7-12 years, was drawn from some rural and urban schools of Rohtak District. The tools used were: Raven's Coloured Progressive Matrices (RCPM) and Piaget-type tasks to assess the conservation of mass, weight, volume and the abilities of seriation and classification. Chi-square was used to analyse the data.

Major Findings : (1) The development of mass, weight and volume conservation was positively related to intelligence. (2) The development of seriation and classification abilities appeared to be significantly related to the level of intelligence of children. [VKJ 1901]

Kumari, Vijaya M.P. 1991. **Problem-solving strategies and cognitive capabilities of children of age-group 10-12.** Ph.D., Edu. Univ. of Mysore.

Problem: This is an attempt to study problem-solving strategies and some cognitive capabilities of 10-12 years old children.

Objectives: (i) To identify, analyse, describe and define a variety of problem-solving strategies used by children of 10 to 12 years of age, (ii) to assess the cognitive capabilities of children, and (iii) to examine this relationship with problem-solving strategies.

Methodology: The sample comprised 100 boys and girls drawn from Grades V and VI of two types of schools of Mysore City. The tools used were: Problem Solving Tasks, Tests of Cognitive Capabilities measuring conservation of area, mass and volume, combinatorial thinking, proportionality, and probability.

Major Findings: (1) The overall problem-solving ability and success on different types of problems were significantly and positively related to each cognitive capability separately as well as globally. (2) There was evidence for some sequential steps in problem-solving and different forms or levels of responses to be associated with the tactics used by children. (3) A wide range of meaningful variations in the tactics were evident in relation to the nature of the problems. [BNS 0983]

Majumdar, Braja Gopal. 1990. **Story-telling in education: A way of concept formation.** *Indian Educational Review*, Vol. 25(2): 73-81.

Problem: The study examines the impact of story-telling on the formation of science concepts among students of primary classes.

Objectives: (i) To study the impact of story-telling (stories based on scientific topics) on the formation of science concepts and on the scholastic achievements of primary school students, and (ii) to compare the performance of

students on a science concept formation test and scholastic achievement measures.

Methodology: The sample comprised 32 students of Class VII drawn from an urban primary school. They were divided into experimental and control groups irrespective of their IQ and SES levels. The tools used were: stories from the *Ramayana* and the *Mahabharata*, and a 20-item test of Science Concept Formation. Mean, SD, 't' test and coefficient of correlation were used in the analysis of the data.

Major Findings: (1) The experimental group was significantly better in academic performance than the control group. (2) The experimental group was significantly better in conceptual development than the control group. (3) The academic achievement and science concept scores of both the groups were significantly related. [VKJ 1482]

Malhotra, Anjali. 1990. **The development of classificatory logic during early adolescence: A transition from concrete to formal operation.** Ph.D., Edu. Agra Univ.

Problem: It is an attempt to examine the development of classificatory logic during early adolescence.

Objectives: (i) To study the nature of classification and the logic subjects employed in classifying objects or words from 11+ to 15+ years of age, (ii) to adapt Bruner and Piagetian tasks to study classificatory skills and logic for 11+ to 15+ age groups, (iii) to study how children tend to form classes and learn to employ logic in classifying objects, and how they learn to change the criteria of categorisation between the ages of 11+ and 15+, (iv) to study the differences between the criteria of categorisation in Piaget's and Bruner's models, (v) to examine how these are related to the general intelligence of children, and (vi) to study how the nature of task influences the criteria of categorisation.

Methodology: The sample comprised 1,000 students (200 each from 11+, 12+, 13+, 14+ and 15+ year age levels) drawn from English medium schools of Agra City. The tools used were, Bruner's Model of Concept Attainment (non-verbal), and Piaget's Model (verbal). Analysis was carried out in terms of weighted scores and simple proportional counts.

Major Findings: (1) The use of perceptible attributes elicited was greater for pictures and lesser for verbal tasks. (2) The use of functional plus nominal characterisation was greater for picture tasks than verbal. (3) Functional mode was the most specific mode of this age group, and the use of this mode was invariably greater for the ages of 11+ to 15+. (4) Younger children used extensive superordinate and complexive modes more often than older children. (5) Continuous curves were observed between the ages 11+ and 13+, however, the criterion of internalising the class inclusion skill was achieved only at the age of 15+. (6) The proportion of conservation increased with age, whereas it showed a decline with the complexity of the task. (7) The skill of hierarchical classification was demonstrated by 14+ and 15+ students, but the complexity of the task adversely affected their correct responses. [ss 0758]

Mishra, P. 1991. **Decoding competence and speech-related cognitive process: Developmental changes.** M.Phil., Psy. Utkal Univ.

Problem: This is an attempt to study developmental changes on decoding competence and speech related cognitive processes.

Objectives: (i) To investigate the difference between good and poor decoders (Oriya word reading) in their speech related processes: naming time, speech rate, sequence repetition and serial word recall, (ii) to examine the developmental difference in the speech-related processes of good and poor decoders, (iii) to find out the pattern of relationship among speech-

related processes and decoding in a developmental context, and (iv) to analyse developmental changes in the pattern of this relationship for good and poor decoders.

Methodology: The sample comprised 60 children of Grades I and III, drawn from two Oriya-medium schools in Cuttack from 6-7 and 8-9 year age groups. They were randomly selected from the pools of good and poor readers identified by teachers in terms of their reading competence. The tools used were the Decoding Test of Dash, the Serial Word Recall Test of Das and Naglieri, Naming Time Test, the Speech Rate Test of Das and Mishra, and Sequence Repetition Test. The data were analysed using Mean, SD, ANOVA and correlations.

Major Findings: (1) Performance in decoding as well as speech related processes, except sequence repetition, improved as a function of age and grade. (2) A significant difference was found between the performance of good and poor decoders in naming time, speech rate and sequence repetition, but not in serial word recall. (3) A highly significant positive relationship was found between decoding and naming time for both grades. While the relationship held good for both groups in Grade III, it was true only for good decoders in Grade I. (4) The various measures were found to be positively correlated with each other, but the strength of relationship was generally greater at Grade III than at Grade I, particularly for good decoders. [KCP 0466]

Mohan, Gita. 1988. **Cognitive preferences of high school students in relation to certain academic and personal variables.** Ph.D., Edu. Univ. of Mysore.

Problem: The study attempts to assess the relationship of cognitive preferences with certain academic and personal variables among high school students.

Objectives: (i) To analyse the cognitive preferences of students in terms of different dimensions of learning experiences for different

kinds of learning tasks, and (ii) to find out the relationship between cognitive preferences and certain aptitudinal, academic and personal variables.

Methodology : The sample consisted of 1,000 students drawn from Class IX from 27 secondary schools in Mysore City. A stratified proportionate sampling procedure was used. The tools used were: Cognitive Preference Inventory and Subject Preference Inventory. Mean, SD, 't' test, multiple regression analysis, and two-way ANOVA were used for the analysis of results.

Major Findings : (1) The overall subject preferences showed no relationship with four of the six dimensions of cognitive preferences. (2) No significant relationship was observed between cognitive preferences and the four aptitudinal variables. (3) The personality variables of extraversion, neuroticism and achievement motivation, taken together, showed no significant relationship with any of the cognitive preference dimensions. (4) No significant relationship between academic achievement and the cognitive preference dimensions of "reception-discovery", "passivity-activity" and "superficiality-depth" was revealed. On the other hand, a negative relationship was indicated between academic achievement and cognitive preference dimensions of "concreteness-abstractness", "induction-deduction" and "analysis-synthesis". (5) On four of the six cognitive preference dimensions, the effect of SES was found to be linked with the sex-difference variable. [BNS 0966]

Mukherjee, Ranjit. 1991. **Concept studies and language use: What do behaviourists and cognitivists say?** *Indian Educational Review*, Vol. 26(2): 10-29.

Problem: The study is an attempt to trace the theories related to the concept-formation process and the use of language.

Objectives: (i) To review studies of concept formation and use of language, (ii) to find out

the role of language in the process of systematisation of experiences for arriving at some generalisations, (iii) to find out the implications of concept studies in modern language education, and (iv) to formulate strategies for language teaching and learning.

Methodology : A rational analysis of philosophical and psychological theories with regard to formation of concept and place of language in cognition was attempted.

Major Findings: (1) The main concerns of philosophical theories were to determine whether concepts are organised ideally or experienced physically. (2) Under progressive psychology, language learning was conceived in terms of behaviouristic process. (3) Under cognitive psychology, the emphasis was more on mental behaviour and experiences. This school gave some importance to language in the process of cognition. (4) In the neo-cognitive school, concept formation has been viewed as an important intellectual activity, and the use of language for better organisation of concepts is considered essential. (5) During the fifties and after, there was emphasis on the use of language as an important step towards formation of concepts. (6) During the twentieth century, there has been a move from formation of percepts to generalization or concept formation. (7) The process of thinking is facilitated through verbal expression. According to cognitivism, there is a close linkage between the language structure and the process of human cognition. (8) Concept formation, interpretation of data and application of principles are means for teaching inductive thinking. (9) Concept studies provide a sound basis for adoption of innovative strategies for the teaching of language; and for language acquisition, adequate exposure in terms of social interaction is essential. [PD 1497]

Najmah. 1989. **Learning as a function of the difficulty value of the learning material.** M.Phil., Edu. Univ. of Kashmir.

Problem : It attempts to study learning as a function of the difficulty value of the learning material.

Objectives: (i) To examine the impact of the difficulty value of the learning material on learning achievement with respect to information, and concept formation and application, and (ii) to examine the effect of the difficulty of the learning material on motivation and auto-instruction.

Methodology : The sample comprised 100 students of 5+ and 6+ years of age, drawn from the Caset Experimental School, Karan Nagar (J & K). A self-constructed Learning Achievement tool was used in the study. Mean, SD and 't' test were used to treat the data.

Major Findings: (1) The learners verbalised easily when the material presented to them contained very little complexity. (2) The learners identified the numbers easily when these were arranged from easy, simple, and concrete to difficult, complex and abstract situations. (3) Concept formation was facilitated when the situations were arranged from concrete and known experiences to abstract and unknown experiences. (4) The level of learners' performance changed with the difficulty value of the learning material. [AGM 1857]

Panda, S., 1991. **Effects of certain organismic variables on cognitive style among pre-school children and an analysis of its correlates**. Ph.D., Home Sc., *Utkal Univ.*

Problem: The study attempts to investigate the effects of certain organismic variables on the cognitive style of pre-school children and to find out its correlates.

Objectives: (i) To assess field-independence and field-dependence of pre-school children using PEFT, (ii) to assess intelligence, receptive vocabulary, and autonomous-achievement strivings of pre-school children, (iii) to analyse the effects of sex and age on field-independence

and field-dependence scores, (iv) to find out the relationship of field-independent and field-dependent cognitive styles with intelligence, receptive vocabulary and nine different aspects of autonomous achievement striving, and (v) to examine the interrelationship among the different variables.

Methodology : The sample comprised 180 children of four, five and six years of age, selected randomly from the pre-school classes of certain nursery schools located in the cities of Bhubaneswar and Cuttack in Orissa. The tools used were the Pre-school Embedded Figures Test of Coates, the Block Design Test of Wechsler, the Peabody Picture Vocabulary Test R, Form L of Dunn and Dunn, and the Autonomous Achievement Striving Scale of Crandall and Sinkeldam. Mean, SD, ANOVA, simple and partial correlations and multiple regression analysis were used as techniques for analysis of the results.

Major Findings: (1) Boys and girls did not differ in their disembedding ability, whereas with an increase in age, there was an increase in field-independence. (2) Girls scored higher than boys on the intellectual ability test which showed a progressive decline with increasing age. (3) There was no difference in receptive vocabulary associated with sex. With increase in age, variations were found in the receptive vocabulary scores. (4) Pre-school boys and girls showed similar autonomous achievement striving, and there was no significant age effect. (5) Variables such as autonomous achievement striving and intellectual ability were generally found to be significantly correlated with field-independence only for the 5-year-old boys' sample. For four and six year-old samples, none of the variables appeared to be correlated with field-independence. (6) The significance of intercorrelations among psychological variables was generally found to be linked with variables of age and sex. [KCP 0377]

Panigrahi, Sundarshan C. 1989. **Transfer from**

serial to paired associate learning among Grade X students of Orissa. *Indian Educational Review*, Vol. 24(4): 98-104.

Problem: The study attempts to examine the magnitude and direction of transfer of learning as a function of the relationship of the serial list to the paired-associate list and level of meaningfulness.

Objectives: (i) To study the transfer of learning as a function of the relationship of the serial list to the paired-associate list, and (ii) to examine the transfer of learning in relation to the level of meaningfulness of the list items.

Methodology: Ninety Grade X male students from six urban schools of the Sambalpur District of Orissa served as the sample. There were 15 students from each school. The sample was divided into four experimental and two control groups. The tools included two lists, each of 24 trigrams, of high and low meaningful values. One-way and two-way ANOVA were computed to analyse the results.

Major Findings: (1) There was a significant difference between the groups learning paired-associates of high- and low- meaningful values. (2) The amount of transfer from serial to paired-associate learning was found to be greater with high-meaningful than with low-meaningful material. (3) Groups which differed with respect to the relationship between serial and paired-associate list learning showed significant differences in their amount of transfer. (4) The amount of transfer was greater when the paired-associate list was composed of adjacent items of the serial list than when it was composed of non-adjacent items. (5) The interaction between the level of meaningfulness and the relationship of the serial list to the paired-associate list was not found to be significant. (6) The groups which learned the paired-associate list composed of adjacent items of the serial list showed better performance than the groups which learned the paired-associate list composed of non-adjacent items of the serial list. [SPr 1453]

Parasnis, H.N. 1990. **Development of a problem-solving ability test for students of Standard IX.** Independent study. Pune: State Council of Educational Research and Training.

Problem: The study attempts to construct a test for Marathi-medium students of Standard IX to measure their problem-solving ability.

Objectives: (i) To construct a test for measuring the problem-solving ability of Marathi-medium students of Standard IX, and (ii) to find out reliability and validity of the test.

Methodology: Four hundred boys and girls drawn randomly from Standard IX were used as subjects for item analysis. For the study of reliability and validity, an additional sample of 100 students was used. Raven's Progressive Matrices Test was used as the tool for validation of the test. Percentages, 't' test and correlation were used for the analysis.

Major Outcomes: (1) In the final test, 10 items were retained. (2) The facility indices ranged from 0.61° to 0.29°. (3) Discriminating power ranged from 0.42° to 0.70°. (4) The reliability index was found to be 0.72°. (5) The discriminant validity index was 0.68°. [HP 0374]

Patadia, H.J. 1991. **A strategy for mastery learning : Its development and comparison with conventional methods.** *Indian Educational Review*, Vol. 26 (1): 14-25.

Problem: The study attempts to test the effectiveness of mastery learning in a group-oriented classroom to meet the conflicting demands of a classroom situation.

Objectives: (i) To develop a strategy for mastery learning in the geometry course for the pupils of Grade V, and (ii) to validate the effectiveness of the developed strategy.

Methodology: The study employed a before-after design. In the first phase, the actual teaching-learning processes in the Grade V mathematics classes were observed and

discussed with teachers. In the second phase, an experimental group comprising 55 subjects, matched for I.Q. with a control group of 55 subjects was subjected to a corrective learning process which was evaluated. In the third phase, a final try-out was carried out with 51 experimental and 43 control subjects. The tools used were: Scholastic Achievement Test and a questionnaire and percentiles, mean, SD and 't' test were used for the analysis of results.

Major Findings: (1) The mastery in initial units facilitated the learning of subsequent units in terms of time. (2) The remedial measures had a positive effect on the overall achievement scores of students. (3) With the use of mastery learning strategies, the role of I.Q. in the learning achievement of pupils was considerably reduced. (4) Private tuitions and help from others for homework had very little influence on the achievement of students. [KCN 1904]

Pillai, A.S. 1989. **Concept learning**. *Indian Educational Review*, Vol. 24(4): 25-38.

Problem: It attempts to study various measures of concept learning.

Objective: To study the structure, attributes and their interdependence, and the hierarchy of the concept-learning process.

Methodology: It is a study based on the review of issues analysing the concepts process, concept structures, concept memory and explores application of Band theory of solids/energy for building Band Theory model of memory.

Major Findings:: (1) Concept learning may vary from person to person. (2) Every concept has a structure. (3) Concept understanding will greatly depend upon one's information about it (4) Concept understanding keeps on changing, as more and more information is made available. (5) Concept mastery is decided by concept evolving, concept understanding, concept application and concept memory. (6) The Band Theory model of memory explains how certain information is

easily retrieved while others are not. (7) The model has developed with the help of scientific analogy taking fully into consideration all the existing theories. (8) Though the model has accepted many things from the network models and psycho-analytic models, it suggests that no information is at the same level and it is organised in perfect hierarchical order. [KCN 1449]

Rajeswari, B.1988. **Levels of concept-attainment in middle school children**. Ph.D., Edu. Univ. of Madras.

Problem: This study is an attempt to measure the level of concept attainment among middle school children, and to examine its relationship with intelligence and scholastic achievement.

Objectives: (i) To identify the levels of attainment of some selected concepts among middle school children, (ii) to analyse the variations among middle school children in the levels of attainment of these concepts, (iii) to find out the variations in understanding taxonomic relations, problem-solving, and principles of learning among children, (iv) to study gender differences in the levels of concept attainment, (v) to ascertain the relationship between intelligence and level of concept attainment, and (vi) to study the relationship between level of concept attainment and scholastic achievement in arithmetic, language, science, history and geography.

Methodology: The sample consisted of 544 boys and girls selected from Standards VI, VII and VIII by the cluster sampling technique, from four schools in Coimbatore. The tools used were an adapted version of Klausmeier's Conceptual Learning Test and Cattell's Intelligence Test Scale II, apart from Examination Marks for Scholastic Achievement. Mean, SD, 't' test, analysis of variance, product-moment correlation, and factor analysis were used to analyse the results.

Major Findings: (1) Pupils of higher grades generally scored higher than pupils of lower

grades at the concrete and identity levels of concept attainment, including taxonomic relations and application of principles, with evidence for minor differences for different types of concepts (e.g., tree, cutting tool, equilateral triangle). (2) Boys generally scored higher than girls on the classificatory and formal levels of concept attainment, and on problem-solving and application of principles. (3) The correlations between intelligence and various levels of concept attainment, and between concept attainment and scholastic achievement presented a complex pattern of results. (4) Factor analysis revealed that pupils of all standards present a similar structure of concept attainment for all concepts. [DRG 0098]

Ramachandrarachar, K. 1989. **A factor analytical study of some selected structure of intellect-factor based tests in Kannada for the children of school-leaving age.** Independent study. *Karnatak Univ.*

Problem: The study attempts to examine the factor structure of intellect based on tests in Kannada.

Objectives: (i) To collect, edit, and translate into Kannada the structure of intellect-factor based tests and Creativity Response Matrices I-IV, (ii) to administer the edited tests to a sample of Standard X children, (iii) to subject the data to factor analysis and interpret the factor structure, and (iv) to arrive at the ability profile of children standing on the tests above a suitable cut-off point, in the retained tests, and draw appropriate implications.

Methodology: The sample comprised 192 Standard X students from selected schools of Hubli in Dharwad. The tools used were: 25 tests based on Structure of Intellect factors, Ramachandrarachar's Creativity Response Matrices I-IV, and Passi's Test of Creative Thinking. Factor analysis was used for the analysis of data.

Major Findings: (1) Five factors were identi-

fied, which were named as DSR, DMU, DMR, DFI, and DMI. (2) Tests representing the factors very well were: (a) DSR — (i) Number rules, (ii) Alternate additions; (iii) CRM — I Score; (b) DMU—CRM I:C + CRM II:G score combination; (c) DMR — (i) Simile completion, (ii) Controlled associations; (d) DFI — (i) Figure production, (ii) Production of figural effects, (iii) Limited dots; (e) DMI—CRM I:D + CRM II : H score combination. (3) The profiles on variable S in the upper 20% distribution of standard score totals indicated substantial individual differences in student performance. (4) The variables hypothesized originally, based on individual factor based task as well as those based on multiple scoring adopted specially in CRM I, CRM II, and PTC, did not stand as a separate factor to represent the originality factor. [KR 0580]

Ray, Mrinmarji. 1988. **Ethnic difference in intelligence.** *Indian Educational Review*, Vol. 23(2): 114-19.

Problem: The study attempts to examine the difference in the intelligence of the Santhal and the Kora ethnic groups.

Objectives: (i) To study the genetic and racial differences in intelligence among Santhals and Koras, and (ii) to study the sex difference in intelligence among Santhals and Koras.

Methodology: The sample comprised 100 Santhals and 100 Koras (both male and female) drawn from Santhal Parganas. The age of the subjects ranged from 25 to 50 years. The samples represented the lower-middle SES groups. The tools used were Raven's Standard Progressive Matrices, and Pareek and Trivedi's SES Scale. Mean, SD, 't' test and ANOVA were used for the analysis of results.

Major Findings: (1) The mean intelligence scores of Santhals were significantly higher than those of Koras. (2) There was no significant difference in the intelligence scores of Santhal females and Kora females, and Kora males and

Kora females. (3) The difference in intelligence scores of Santhal males and females was significant. [KCN 1102]

Sawade, S.D. 1989. **Verbal maze learning: Its cognitive and personality determiners**. Ph.D., Psy. Nagpur Univ.

Problem : It attempts to find out the relationship of verbal maze learning with field dependence-independence, extraversion, neuroticism and intelligence.

Objectives: (i) To study individual differences in maze learning, (ii) to examine the effect of field-independence-dependence, extraversion, neuroticism and intelligence on verbal maze learning, and (iii) to examine the interactive effects of the above-mentioned variables on verbal maze learning.

Methodology: The sample comprised 200 boys and girls drawn from Standard XI students from a group of 540 cases. The tools used were: the Marathi adaptation of Junior Eysenck Personality Inventory, PSM General (Verbal) Intelligence Test (Short-form), the Hidden Figures Test (HFT) of Swinnen, the Children's Embedded Figures test (CEFT) by Talot et al. and Verbal Maze. Mean, SD and correlations were computed to analyse the data.

Major Findings: (1) There were positive correlations among the number of trials required, number of errors committed and the total amount of time taken, but these were negatively correlated with field-dependence-independence. (2) Extraversion showed a negative relationship with total number of trials, number of errors committed and time taken, but neuroticism showed a positive relationship with these variables. (3) Field-independent students took less trials, less time, and committed less errors than field-dependent individuals. (4) Individuals high on neuroticism took more time than those low on neuroticism. (5) Emotionally stable extraverts took less time to learn

the verbal maze than emotionally unstable introverts, whereas high-intelligent students took less number of trials, and committed less errors than low-intelligent subjects. [GPK 1588]

Shah, Suhasini. H. 1992. **A study of the effectiveness of educational programmes for developing skills of thinking**. Ph.D., Edu. Saurashtra Univ.

Problem: The study examines the effectiveness of an educational programme on division making, decision making and intellectual skills.

Objectives: (i) To develop programmes for developing division making skills and creative-thinking skills, (ii) to develop a test for measuring decision-making skills, and (iii) to examine the effect of the programmes on decision-making skills, creative thinking skills and intellectual skills.

Methodology: A 2 x 2 factorial experimental design was used for the study. The sample consisted of 144 boys and girls of Grade IX who were categorized as of high intelligence and low intelligence. Four groups were subjected to two different programmes aimed at the development of decision-making and creative-thinking skills. Each programme contained a series of fifteen lessons, each of 70 minutes duration. The tools used were: Decision Making Test prepared by the investigator, the Creative Expression Test developed by J.G. Dave, and the Desai-Bhatt Verbal Group Intelligence Test. A 2 x 2 factorial analysis of variance was used for the analysis of results.

Major Findings : (1) The effect of the decision-making programme was found to be more highly placed among girls than boys in the samples characterised by a lower intelligence. (2) The creative thinking skills development programme led to the development of fluency and originality skills in all the groups. (3) The intelligence scores of all the groups showed a significant increase, particularly for items of opposite words, class

identification, mathematical reasoning and social reasoning. [DAU 0008]

Sharma, Prabhavati. 1990. **Need motivations as a function of job status and cognitive style.** Ph.D., Psy. *Ravishankar Univ.*

Problem: This is an attempt to study the relationship of job status and cognitive style with four need motivations (n Ach, n Aff, n App and n Power) and to examine variations in it due to certain personal-social variables.

Objectives: (i) To examine the relationship between various kinds of need motivations (n Ach, n Aff, n App and n Power) and cognitive style, (ii) to examine the relevance of need motivations as functions of job status and cognitive style in the industrial setting, (iii) to examine the effects of age, educational status, job status and cognitive style on need motivations, (iv) to assess the role of biographical factors in the acquisition of need motivations, and cognitive style of industrial managers and workers, and (v) to study the differential cognitive style and motivational potentialities of managers and workers.

Methodology: The sample consisted of 91 managers and 90 workers selected randomly from the Bhilai Steel Plant in M.P. A systematic random quota sampling technique was employed in the selection of samples. The workers were matched on a number of personal and organisational variables. The tools used included: the Achievement Motive Inventory (AMI) of Prayag Mehta, the Approval Motive Scale (AMS) of Tripathi and Tripathi, McClelland's six Projective TAT pictures, and the Hindi adaptation of Witkin's Hidden Figures Test of Palnikkar and Helodé. Mean, SD, 't'-test, ANOVA and product-moment correlations were computed to test the hypotheses.

Major Findings: (1) n Power and n Aff were found to be highly and positively correlated both in the managers' as well as workers' samples. (2) The relationship between cognitive style and the four need motivations was found to be very

weak. (3) While n App was significantly affected by the age of workers, job status and the age of employees, n Aff was affected by the age of managers, workers and employees as well as their educational status, and n Power was affected by cognitive style of managers. (4) The managers and workers showed significant differences in the level of their n Ach, n Aff and n Power, but not in the level of n App. (5) Managers scored significantly higher on the test of cognitive style than workers, showing that the former were more FI than the latter. (6) The FI and FD employees differed significantly only in the level of n Aff. [VPS 0865]

Sharma, Sushila. 1988. **Concept attainment and development of logic in school students.** Ph.D., Edu. *Agra Univ.*

Problem : This is an attempt to study the development of conservation of some science concepts in school-children in relation to age and intelligence.

Objectives: (i) To develop Piaget-like standard tasks for the measurement of the development of the science concepts of weight (W), volume (V) and density (D), (ii) to study the development of conservation of W, V and D, in students in relation to age and intelligence, (iii) to find out the proportion of students from age 11 to 16 that underlie Piaget's pre-operational, concrete-operational and formal operational stages of development, (iv) to analyse the nature of errors the students commit in the process of responding to conservation tasks, (v) to study the development of the conceptual classification in Piaget's model, (vi) to analyse the errors the students make and the confusion they face in the process of classifying objects and concepts, and to relate these with subjects' age and intelligence, and (vii) to study the development of logic from concrete logical to hypothetical deductive reasoning stage in relation to the variables under study.

Methodology: The sample comprised 800 boys and girls of 11 to 16 years of age. The tools used

were: the SES Scale by D.C. Saxena and Sushila Sharma, and Cattell's Culture Fair Test of Intelligence. Frequency counts and percentages were used to treat the data.

Major Findings: (1) The conservations of W concept was fully achieved by children by the age of 10+, whereas the concept of V was conserved around the age of 15+ and showed an increase up to the age of 16+. (2) The amount of conservation of the D concept varied from a minimum of 22.5% at 11+ to a maximum of 50.5% at 16+ years of age. While its proportion increased with age, there was a decrease in it due to the complexity of the task. On the conservation of D concept, the sample lagged behind its counterpart Genevan sample by five years. (3) The mental development of children indicated the development of logical thought, and there was evidence for the development of logical thinking among adolescents in a sequential manner. (4) Errors were committed by students because of confusion, non-clarity of concepts and misconception. [SS 0768]

Shukla, Mamta. 1991. **Development of cognitive style and locus of control as a function of child-rearing practices.** Ph.D., Psy. Ravishankar Univ.

Problem: It attempts to study the influence of child-rearing practices on the development of cognitive style and locus of control among individuals of different locales and SES.

Objectives: (i) To study the impact of child-rearing practices on the development of cognitive style and locus of control among individuals, and (ii) to examine the relevance of certain demographic factors (e.g., age, sex, SES, parental status, etc.) in the development of cognitive style and locus of control among individuals.

Methodology: A quasi-random sample of 252 urban and 254 rural students was drawn from 4 urban and 5 rural schools of Durg District in M.P. Variations in SES and family structure were sought during the selection of subjects. The

instruments used included: the SES Scale by Kulshrestha, A Family-Structure Questionnaire, a Scale of Child-Rearing Practices (adopted from A.M. Khan scale), the Internal-External Locus of Control Scale of Valecha, and Witkin's Embedded Figures Test (EFT). Mean, SD, 't' test and ANOVA, Tetrachoric and product-moment correlations were used in the treatment of the data.

Major Findings:(1) The relationships among child-rearing practices, family structure, SES and locale were found to be positive and highly significant. (2) There was virtually no relationship between cognitive style and locus of control. (3) Students from nuclear families and the low-SES group scored significantly higher than those from joint families and the high SES group on the EFT. (4) On the locus of control measure, there was no significant difference between children from nuclear and joint families, whereas differences according to SES and locale appeared to be significant. (5) Family structure had a very significant effect, whereas SES had moderately significant effect on cognitive style. [VPS 0866]

Suri, Ishwar Saran. 1989. **An investigation into the structure of reasoning ability of the 15-year old students belonging to rural and urban areas.** Ph.D., Edu. Jamia Millia Islamia.

Problem: This is a study of the structure of the reasoning ability of rural and urban students.

Objectives: (i) To investigate differentiation in the pattern of reasoning abilities of students, and (ii) to examine the structure of the reasoning ability of students of rural and urban backgrounds.

Methodology: Two hundred urban and 119 rural students, randomly selected from urban and rural schools in Delhi, served as the sample. Bala's *Tarka Kshmta Parikshan Patra* was used as the tool. Correlation coefficients and factor analysis were computed for the analysis of data.

Major Findings: (1) For the rural group, Cognition of Semantic Classes, Cognition of Semantic Relations, and Convergent Production

of Semantic Implications emerged as factors accounting for reasoning ability. (2) For the urban group, Convergent Production of Semantic Classes emerged as the only factor to account for reasoning ability. [SPR 0601]

Verma, Kamini. 1988. **An experimental study of short-term and long-term memory as determined by motivation, age, sex and sense modalities.** Ph.D., Psy. Panjab Univ.

Problem: The study examines the effects of age, sex, motivation, sense modalities and certain personality variables on short-term and long-term memory.

Objectives: (i) To study the effect of age, sex, sense modalities and motivation on short-term memory (STM) and long-term memory (LTM) and (ii) to study the relationship of STM and LTM with extraversion, neuroticism, psychoticism and social desirability.

Methodology: The sample comprised 240 male and female subjects selected randomly from the age-range 12-20 years, from Ambala, Moga, Sanawar and Chandigarh. The tools used were, a Paired Associate Learning Task, Verbal Instructions of Brown, Eysenck Personality Questionnaire and Junior Eysenck Personality Questionnaire. Mean, SD, 't' ratios, analysis of variance and correlations were computed for the analyses of results.

Major Findings: (1) A superior performance of the older age-groups over the younger age-groups on both STM and LTM was clearly in evidence. (2) Sex was found to be a significant determinant of LTM. (3) Visual presentation resulted in greater performance on both STM and LTM. (4) The high-motivation group performed better than the low-motivation group. (5) Extraversion was not found to be related to LTM, but it was positively correlated with the STM of paired associates for 12 and 16 years of age samples. [JNJ 0264]

Vyas, J.G. 1992. **An experimental comparison of the effectiveness of exemplar and attributal strategies in concept learning in reference to students' cognitive style.** Ph.D., Edu. Bhavnagar Univ.

Problem: This study attempts to compare the effectiveness of exemplar and attributal strategies in concept learning and to relate these to the learner's cognitive style.

Objectives: (i) To study the effectiveness of exemplar, attributal, and both exemplar and attributal strategies on concept learning, (ii) to study the effect of students' cognitive style on their concept learning, and (iii) to study the interactive effect of learning strategies and cognitive style on concept learning.

Methodology: The sample comprised 300 girl students of Standard VIII drawn from a girls' high school of Bhavnagar. The sample was purposive in nature. A 3 (learning strategy) x 2 (cognitive style) design was employed. The tools used included four Concept Learning Tests developed to measure students' Concept Learning Achievement, and a Gujarati adaptation of the Group Embedded Figures Test (GEFT). The hypotheses were tested by the use of two-way ANOVA, and 't' test.

Major Findings: (1) The combined exemplar and attributal strategy was found to be the most effective strategy of concept learning at all stages. (2) Field-independent cognitive style appeared to be more effective than field-dependent style for concept learning at all stages. (3) The interactive effects of concept learning strategies and cognitive styles were significant only for the "on-task" and "retention" test conditions. The interactive effect was not significant for the post-test condition. [DJM 1137]

Yadav, R.S. 1991. **Factors affecting intelligence.** *Indian Educational Review*, Vol 26(1): 95-106.

Problem: The study examines the factors that affect intelligence.

Objectives: (i) To identify factors affecting intelligence, and (ii) to examine the controversial issues with regard to the underlying factors which contribute towards differential intelligence.

Methodology: The study is based on library work mainly centring around the findings of various studies undertaken in this area. The factors affecting intelligence as reflected in related studies have been identified, reviewed and discussed.

Major Findings: (1) Heredity sets the upper limit in the development of intelligence; however, much depends on the factors that operate in the environment of an individual; these decide the direction of development and the level of development finally reached. (2) Intelligence, termed as the ability of individuals, is contributed to, 80% by hereditary and 20% by environmental factors. (3) Generally, the brain follows a spurt of growth of neurons three months before birth and 18 months after birth. Hence, any deficiency in food may cause irreparable loss in intelligence. (4) Factors such as disease during pregnancy, drinking and smoking affect intelligence. (5) Culture exercises a significant influence on the mental abilities of children. (6) Schooling raises the level of intelligence. Hence, an enriched academic environment, such as use of better methods of teaching, quality of content, guidance, motivation, home assignments, supervision and continuous feedback, etc., may raise the levels of learning and of intelligence. [SP 1909]

Yadav, R. S. 1991. **Guilford's SOI model as a function of cognitive, model psychomotor and affective abilities.** *Indian Educational Review*, Vol.26 (4): 66-79.

Problem: The study examines the present state of Guilford's SOI model.

Objective: To examine the present status of the Guilford's SOI model.

Methodology: The library research procedure has been adopted, and a review of the relevant studies has been presented.

Major Findings: (1) The revised version of Guilford's SOI model generates $5 \times 5 \times 6 = 150$ intellectual abilities. This model leads to the generation of more intellectual functions and serves as a heuristic device. It gives rise to the generation of new hypotheses leading to research on, and development of intelligence. (2) Mathematics as a subject takes into account all types of intellectual abilities in working out solutions to a problem. Therefore, all six kinds of the products may be utilized in mathematics. Mathematics also defines the terms with objectivity and precision, whereas in other content areas, the brain operates with what best it can do to interpret things, but comparatively in a less precise manner. (3) Considering only the kinds of content areas and products, one will attain a matrix of $5 \times 6 = 30$ unique kinds of items of information. Such a set may be recognised as a 'psychoepistemology', which is a kind of thing the philosophers at one time were looking for to evolve a theory of intelligence, according to Guilford. [SP 1916]

Also See

- Bevli, U. 1987. **A study of cognitive development in Indian children of 2 to 13 years: A longitudinal study.** Independent study. *National Council of Educational Research and Training.* (ERIC Funded). [SRA 1125] (See in Chapter 15.)
- Bhoj, A.N.T. 1992. **Pattern of cerebral dominance and its relation to handedness, cognitive style, creativity and personality.** M.Phil., Psy. *Bangalore Univ.* [GMK 1852] (See in Chapter 6.)
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- Chatterjee, M. 1991. **Attention, coding and speech related process of skilled and less-skilled readers.** M.Phil., Psy. *Utkal Univ.* [KCP 0469] (See in Chapter 1.)
- Devaki, L. and Ramasamy, K. 1990. **Cognitive styles and errors in second language learning.** Independent study. *Mysore: Central Institute of Indian Languages.* [BNS 0981] (See in Chapter 1.)
- Doshi, P.C. 1989. **A study of achievement and cognitive preference styles in mathematics of Class X students.** Ph.D., Edu. *Univ. of Rajasthan.* [JKS 0703] (See in Chapter 20.)
- Gill, Tejinderjit Kaur. 1990. **The effect of training strategies on creative problem-solving skills and cerebral dominance in relation to intelligence, personality and cognitive style.** Ph.D., Edu. *Panjab Univ.* [JNJ 0297] (See in Chapter 23.)
- Gore, C.V. 1990. **A study of future orientation of IX Grade boys and girls with high level of creativity with respect to certain cognitive and non-cognitive variables.** Ph.D., Psy. *Nagpur Univ.* [GPK 1593] (See in Chapter 11.)
- Hejmadi, A. 1991. **Effects of intervention training on some cognitive abilities of preschool children.** M.Phil., Psy. *Utkal Univ.* [KCP 0511] (See in Chapter 14.)
- Jain, Shikha. 1991. **Child-rearing practices, adolescence cognitive ability and achievement.** Ph.D., Psy. *Univ. of Lucknow.* [RJS 0676] (See in Chapter 38.)
- Kapoor, Swarsha. 1990. **Cognitive functioning and perspective taking ability: A comparative analysis of normal and deaf children.** Ph.D., Edu. *Jawaharlal Nehru Univ.* [SCG 0155] (See in Chapter 27.)
- Kasturi, Jachuck. 1990. **SES and time related effects of pre-school education on cognitive abilities.** Independent study. *National Council of Educational Research and Training.* [GCU 1949] (See in Chapter 14.)
- Kharakwal, Meena Kumari. 1988. **Development of formal operational thought in Tharu and non-Tharu boys.** Ph.D., Psy. *Kumaun Univ.* [AB 1827] (See in Chapter 30.)
- Lalitha Bai, T.K. 1992. **A comparative study of the cognitive factor structures of the high-average and low-achievers in secondary school mathematics.** Ph.D.,

- Edu. *Univ. of Kerala*. [VR 1640] (See in Chapter 20.)
- Malik, Chander Kanta. 1990. **A study of the impact of investigatory approach upon student teachers' cognitive appraisal and its implications for the science teachers' training programme.** Ph.D., Edu. *Maharshi Dayanand Univ.* [DKC 0100] (See in Chapter 19.)
- Mandaravalli, M.R. 1991. **Cognitive development in visually handicapped children—concrete operational stage.** Ph.D., Edu. *Univ. of Mysore*. [BNS 0968] (See in Chapter 27.)
- Manjuvani, E. 1986. **Effect of enriched perceptual experiences through play materials on the performance of pre-school children on simple perceptual tasks.** M.Phil., Home Sc. *Sri Venkateswara Univ.* [PVD 0113] (See in Chapter 14.)
- Manu, Patrick. 1992. **A study of certain cognitive and affective styles of leadership potential of +2 students in India.** Ph.D., Edu. *Agra Univ.* [SS 1354] (See in Chapter 6.)
- Mishra, G.S. 1991. **Cognitive information processing in tribal and non-tribal children.** Ph.D., Psy. *Utkal Univ.* [KCP 0394] (See in Chapter 24.)
- Mishra, H.C. 1989. **Cognitive development: Metalinguistic skills and educational achievement of unilingual and bilingual tribal children.** Ph.D., Psy. *Utkal Univ.* [KCP 0393] (See in Chapter 30.)
- Mishra, S. 1991. **Effects of cognitive intervention training on intelligence and curiosity of pre-school children.** M.Phil., Psy. *Utkal Univ.* [KCP 1388] (See in Chapter 14.)
- Mishra, S. 1991. **Working memory and reading in Oriya orthography.** Ph.D., Psy. *Utkal Univ.* [KCP 0513] (See in Chapter 1.)
- Mohanty, B.K. 1992. **A study of relative effectiveness of using Jurisprudential Inquiry Model and Concept Attainment Model in the cognitive development, in moral judgement, moral concepts and personal values of secondary school students.** Ph.D., Edu. *Utkal Univ.* [KCP 0447] (See in Chapter 24.)
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- Prakash, P. 1988. **Development of reading proficiency: Relationship with meta-linguistic awareness and cognitive processing skills.** Ph.D., Psy. *Utkal Univ.* [KCP 0475] (See in Chapter 01.)
- Pattanaik, A. 1991. **Effects of pre-school education on cognitive development of primary school children.** Ph.D., Edu. *Utkal Univ.* [KCP 0453] (See in Chapter 14.)
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- Sahni, Renu. 1991. **Cognitive and non-cognitive factors leading to success in computer science: A study in senior secondary schools in Delhi.** Ph.D., Edu. *Jawaharlal Nehru Univ.* [SCG 0153] (See in Chapter 19.)
- Sahoo, P.N. 1990. **Creative performance of reflective-impulsive children of Grade VIII of integral education school: An empirical study.** M.Phil., Psy. *Utkal Univ.* [KCP 0418] (See in Chapter 11.)
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- Sharma, Sarita. 1990. **Effects of socio-cultural disadvantage on cognitive and non-cognitive variables: A study of secondary school students of Haryana.** Ph.D., Edu. *Kurukshetra Univ.* [CLK 0332] (See in Chapter 9.)
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- Singh, R.D. 1992. **Effectiveness of teaching mathematics through computer-**

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- Sood, Kamala. 1990. **Comparison of advance organiser and reception strategies for acquisition of language concepts in relation to cognitive style, intelligence and creativity.** Ph.D., Edu. *Punjab Univ.* [JNJ 0293] (See in Chapter 24.)
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- Tripathy, A. 1989. **Effects of pre-school education on cognitive ability and academic achievements of pre-adolescents and adolescents.** M.Phil., Psy. *Utkal Univ.* [KCP 0482] See in Chapter 14.)
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