



Creativity Among College Students In Relation To Their Intelligence

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INTRODUCTION:

Cognitive abilities is a set of abilities, skills or processes which is an almost integral part of human activity. Cognition deals with a person to understand and acts in the world. Cognitive abilities are the brain-based skills which are followed to perform any task from the simplest to the most complex (Singh & Narang, 2014). They are more concerned with the mechanisms of how we learn, remember, solving the problem, and pay attention rather than acquiring actual knowledge. Any task can be bifurcated into the different cognitive skills or functions which are needed to complete that task successfully. For instance, answering the telephone involves at least: perception (hearing the ring tone), decision taking (answering or not), motor skill (lifting the receiver), language skills (talking and understanding language), and social skills (interpreting tone of voice and interacting properly with another human being).

The fields of neuropsychology, cognitive psychology, and thus cognitive training are based on the framework that cognition consists of different mental functions or cognitive abilities which are based on specific constellations of brain structures. For instance memory skills rely mainly on parts of the temporal lobes (next to the temples) and parts of the frontal lobes (behind the forehead). (Bond, 1987).

Cognitive process refers to all the processes by which the sensory input is transformed, reduced, elaborated, stored, recovered and used (Neisser, 1967). It represents a group of processes by which the organisms obtain knowledge of various objects of their environment and make use of this knowledge to achieve solutions to their problems. These processes range from the simple perceptual to the more complex thinking and reasoning processes. Recognition, labeling, analysis, categorization and planning are considered some of the basic cognitive processes. These are often viewed as intellectual and it is believed that through these processes people try to comprehend their environment and achieve solutions to a wide variety of problems and they encounter. Due to its widespread usage, the study of cognitive processes have for a long time been fundamental to all researchers who have some concern with the acquisition, retention, retrieval and utilization of knowledge. For example, learning theorists have always shown concern with the formulation of general principles of acquisition of knowledge and skills; developmental psychologists have tried to understand the growth of knowledge and skills as a function of the biological maturation of human organisms, and their ever-increasing physical and social worlds surrounding them: psychometricians have attempted to develop tools and techniques for the measurement of the

skills and abilities of individuals; and educationists have been concerned with the application of psychological knowledge about individuals for teaching a variety of skills in the most effective ways. The dimensions of development of cognitive processes represent a second issue of concern in research in this field. The qualitative and quantitative aspects of development have been particularly in focus. The contents of different individuals cognition do present evidence of qualitative differences, but quite often these qualitative aspects are quantified, and a general conclusion about an individual's cognitive competence is drawn. While qualitative differences can be easily evaluated on a horizontal plane which characterized as "better", whereas those placed on the lower pole are characterized as 'poor' in terms of the concerned cognitive processes. Thus, some individuals are considered as more able, competent and intelligent than others. (Kumari, 1991).

REVIEW OF RELATED LITERATURE

The review of the literature for the present investigation has been divided into two categories. These are as follows:

Studies on Intelligence

Pociask and Settles (2016) Increasing students' achievement through Brain based strategies.

The objective of this study was to change the level of student engagement in order to increase their academic achievement by incorporating Multiple Intelligences strategies into daily lessons. The students targeted were third and

fourth grade students with learning disabilities and seventh- eighth grade science students who exhibited poor test school, motivation and behaviors that negatively impacted their learning. Data was collected through observation, checklists, parent surveys and Multiple Intelligence (MI) surveys as both pre- and post-intervention measurement tools. The researchers found students to be more engaged in the learning process as a result of the strategies introduced in their classrooms, incorporates, enhanced motivation for learning, and decreased incidences of off task behavior. Students appeared to be more focused and engaged on assessments at the end of the study as a result of the use of various MI strategies and students' learning experiences would be greatly enhanced if teachers taught to multiple student intelligences and incorporated alternative assessments.

Watkin, M.W; Lei, P. and Canivez, G.L. (2014) Psychometric intelligence and achievement: A cross-lagged panel analysis.

There has been considerable debate regarding the causal precedence of intelligence and academic achievement. Some researchers viewed intelligence and achievement as identical constructs. Others believed that the relationship between intelligence and achievement is reciprocal. Still others asserted that intelligence is causally related to achievement. This study addressed this debate with a cross lagged panel analysis of WISC-III and achievement test scores of 289 students assessed for special education eligibility with a test- retest interval of 2.8 years. The optimal



IQ-achievement model reflected the causal precedence of IQ on achievement. That is, the paths from IQ scores at time 1 to IQ and achievements scores at time 2 were significant whereas the paths from achievement scores at time 1 to IQ scores at time 2 were not significant.

Mian (2011) Intelligence, neuroticism, scholastic achievement and need achievement: Comparative study between boys and girls.

The sample of the study consisted of 300 undergraduate students of Pune District. The study showed that girls were superior to boys in intelligence and scholastic achievement. On the other hand, boys compared to girls had a higher score in achievement motivation, level of success, perseverance and realistic attitude. No significant difference was found between boys and girls in neuroticism, ego-ideal and internal control of fate.

Studies on creativity

Charyton, Christine (2015) Creativity (scientific, artistic, general) and risk tolerance among engineering and music students.

The purpose of the study was to examine similarities and differences in general, artistic and scientific creativity among engineering and music College students. 100 music and 105 engineering college students from a large, Northwestern university completed a demographic questionnaire, two general creativity instruments, a cognitive tolerance instruments, a musical creativity instrument,

and an engineering creativity instrument. MANOVAs were performed for the general creativity measures and major whole ANOVAs were performed for scientific and artistic creativity measures and major. The results of this study indicated that musicians scored higher in general & artistic creativity while there were no significant differences in scientific creativity for musicians and engineers. Participants scored higher than the normative data in general, artistic and scientific creativity. Overall, no specialization with each major significantly tended to favor general, artistic or scientific creativity. There were no significant differences in general, scientific or artistic creativity between genders. However, gender distributions varied among major Caucasians who scored significantly higher in general and scientific creativity in both engineering and music groups. However, there were less minority participants in both engineering and music groups. Age stratification found no significant differences in general, artistic and scientific creativity in relation to age groups.

Ackerley, Edward E. (2012) An investigation of the relationship of creativity and leadership in university business students.

The study was exploratory using correlation analysis of data collected in a self- assessment by university under- graduates. The sample consisted of upper-division under-graduate students (n= 122. 53 male and 69 female) who were enrolled in a business/ management program at a major south western university in the United states in the spring semester of 2004. The findings of this study indicated a

significant relationship between creativity and leadership. The findings also suggested the development of an instrument as a predictor of creative leadership is recommended.

Marrinir Nigel R. (2011) Above average ability, creativity and self-efficacy as predictors of success for honors students.

The purpose of the study was to analyze the components of Renzulli's Enrichment Triad, which is comprised of above-average ability, creativity and, for this study, self-efficacy, to gauge its possible use as a predictor of academic success for honors students. A sample of 230 honors students at large public research university in the Northeast were asked to complete a demographic information sheet as well as two survey instruments. The analysis of the data illustrated that high school g.p.a. & the self-efficacy scores were strongly correlated to first year g.p.a. both as individual variables & when they were combined. The implications of these findings support change in the admissions procedures for academically talented students by supporting current methods (high school g.p.a.) refuting others (SATs) & suggesting & supporting new approaches (self-efficacy). This research will help to provide a basis for restructuring admissions processes so that students will be more accurately placed into academic learning environments in which they will thrive.

RATIONALE OF THE STUDY

An overview of the survey of Literature reveals that so far no serious effort has been undertaken to study of cognitive abilities viz, intelligence and creativity of students pursuing

their higher education in Guntur City. Therefore, the investigator feels it important to conduct a research on cognitive abilities viz, intelligence, and creativity of students pursuing their higher education in Guntur City.

STATEMENT OF THE PROBLEM

The statement of the problem is "CREATIVITY AMONG COLLEGE STUDENTS IN RELATION TO THEIR INTELLIGENCE: A CASE STUDY OF GUNTUR CITY".

OBJECTIVES OF THE STUDY

The following objectives are formulated for the proposed study:

- To assess the abilities of students pursuing their Higher Education with regard to their intellectual development.
- To assess the abilities of students pursuing their Higher Education with regard to their creative thinking ability.
- To find the significant mean difference between the groups i.e., (Under-Graduate students v/s Professional students on Non-Verbal Intelligence Test.
- To find the significant difference between Means of Boys and Girls on Non-Verbal Intelligence Test at Under-Graduate and Professional levels.
- To find the significant mean difference between the groups i.e., (Under-Graduate students v/s Professional students on Non-Verbal Test of Creativity



- To find the significant difference between Means of Boys and Girls on Non-Verbal Test of Creativity at Under-Graduate and Professional levels.

HYPOTHESIS OF THE STUDY

The following hypotheses are formulated for the present study: -

H01: There will be no significant mean difference between Under-Graduate students and Professional students on Intelligence.

H02: There will be no significant gender difference on Intelligence at Under-Graduate and Professional levels.

H03: There will be no significant mean difference between Under-Graduate students and Professional students on Creativity

H04: There will be no significant difference gender difference on Creativity at Under-Graduate and Professional levels.

METHOD OF STUDY

The present study will be designed to study of creativity among college students in relation to their intelligence

Research Method

Descriptive survey method will be employed to carry out this piece of research work.

Population

Students of 2 different colleges of Guntur City will constitute the population of the study.

Sample

For the present study, 150 students from two higher levels of learning viz. Under-graduates

and Professionals (Medicine, Engineering, Agriculture & Veterinary sciences) were constituted the sample. The sample was included 75 respondents from U.G. level, and 75 from various professional Institutions. The sample institutions were identified based on random sampling from the list of institutions/colleges falling under the jurisdiction of Guntur University.

Tool used for data collection

The following tool will be employed for the purpose of collecting data from the selected subjects:

✓ Cattell's Culture fair intelligence test will be administered to measure the intelligence of the students.

In order to assess the Intellectual aspect of students, R. B. Cattell's Culture Fair Test of Intelligence-scale 3 (Form A and B) was taken into consideration. It consists of 50 items, with the four sub-tests namely, Series Test, Classifications Test, Matrices Test and Conditions (Topology) Test. The steps included were as:

Scoring

In the Culture Fair Intelligence Test, only one correct answer was to be selected by a pupil for one question from the different alternatives given under each question. In scoring, credit of one point was given for each correct answer. No marks were deducted for wrong answers. After setting the scoring key on the answer-sheet, the wrong and left-out questions were crossed. The raw scores were interpreted according to the different types of norms given.

Reliability of the Test

Method of reliability	Reliability	Co-efficient
Consistency over items (calculated by a variety of methods including split-half and appropriate internal consistency formulas).	0.85	0.74
Consistency over parts. (interform correlations corrected to appropriate length).	0.82	0.70
Consistency over time (Test-retest correlations, time interval varying from immediate to one week).	0.82	0.69

Validity of the test

In order to find out the validity of the Culture Fair Test of Intelligence, the following validity co-efficient were thus obtained through various criteria:

Validity	Validity Co-efficient	Short Form
Concept validity (direct correlations with the pure)	0.92	0.85
Concrete validity (correlations with other Tests of general Intelligence including the Otis, SAT, and Intelligence Structure TEST).	0.69	0.66

Norms

To provide basis for interpreting raw scores rendered by pupils, the scores norms were as

StatisticalbasisofIntelligenceClassification	
Classificationof Intelligence	T-ScoreLimits
VerySuperior	140andabove
Superior	120-139
BrightAverage	110–119
Average	90–109
DullAverage	80–89
Inferior	70–79
VeryInferior	69–Below

✓ **Non-Verbal Test of Creativity by Baqir Mehdi was administered to assess the creative abilities of the students.**

This test is intended to measure the individual's ability to deal with figural contents in a creative manner. In the preparation of Non-Verbal Creative thinking, tasks pertaining to Originality and Elaboration have been used. Three types of activities have been framed for this purpose:

1. Picture Construction Activity

This activity presents the subject with two simple geometrical figures, a semi-circle and a rhomb. The subject is required to construct and elaborate picture by using each figure as an integral part.

Emphasis is put on Originality and Elaboration. Originality is judged by the pertinent details in the picture so that it tells a complete and an interesting story. The subject is also required to give an interesting and unusual title to each picture .Ten minutes are allowed to do this activity.



2. Incomplete Figure Activity

This activity consists of 10 line drawings which could be made into meaningful pictures of different objects. The subject is required to construct different pictures and give suitable title to each picture. Each item is scored for Originality and Elaboration. Time allowed for this activity is fifteen minutes.

3. Triangles and Eclipses Activity

This activity presents the subject with seven triangles and seven eclipses and requires him to construct different meaningful pictures based on the two given stimuli. He is also asked to give suitable title to each picture. Here, also the items are scored for Originality and Elaboration. Ten minutes are allowed for this activity.

Scoring Procedure (Non-verbal)

The Non-Verbal Test for Creativity thinking has been scored for Elaboration and Originality. In scoring for Elaboration, it is important for the scorer to see that the primary and minimum response is meaningful and relevant to the stimulus before it is scored, if the figure is not relevant and meaningful, it should be ignored. The total Elaboration score will consist of a score of one for the primary and minimum

response plus one score each for all the additional new ideas. An idea once scored in a picture should not be scored again in the same picture.

Originality Scoring for the Title

As in the case of scoring for Elaboration, the Originality scores for titles will be considered as Verbal rather than Non-Verbal. The titles are to be evaluated for Originality on the basis of the following scheme:-

1. A zero will be given to a title, if it just names the object such as cat, dog, hen, etc. These are obvious “Thing” titles.
2. A score for one will be give to a title, if it attempts to describe the object in somewhat elaborate terms, such as “A fat man”, “A hungry child”, “A beautiful Bird”, etc.
3. A score of two will be given to a title which is imaginative and goes beyond a mere physical description of the object, for example, “A King from Mars”, “A cat that Never Miscued”.

Reliability of the Test

The reliability of this test (Non-Verbal Creativity Test) was calculated by the following manner. The reliability co-efficient thus obtained are given as under

Elaboration	Originality	Totalcreativityscore
0.932	0.947	0.946

Validity of the test

In order to find out the Validity of the Non-Verbal Creativity Test, The following validity

co-efficient were thus obtained through various criteria:



Elaboration	Originality	Totalcreativityscore
0.346	0.329	0.385

Methods of data analysis

Statistical Tools and Techniques: In this present study, various statistical techniques will be used according to the requirement of the study. In order to draw out the final results i.e., Percentage, Mean, S.D., and t-test will be calculated.

DELIMITATIONS OF THE STUDY

- The study will be delimited to only 2 different colleges of Guntur City.
- The study will be further delimited to only 150 students from two higher levels of learning viz. Under-graduates and Professionals.

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