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A Comparative Study of Achievement in Grammar and Performance on a Cross Word Puzzle in English Grammar

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According to Kothari commission evaluation is a continuous process. It forms an integral part of the total system of education and is intimately related to the educational total objectives. It exercises a great influence on the pupil's study habits, the teacher's methods of instruction helps not only to measure educational achievement but also to improve it. The techniques of evaluation are necessary for collecting evidence about the student's development in desirable direction.

According to Wright Stones evaluation is the assignment of symbols to phenomenon in order to characterize the worth or value of phenomenon, usually with reference to some social, cultural a scientific standard. Evaluation is the relatively new technical term introduced to designate a more comprehensive concept of measurement than is implied in conventional tests and examinations.

According to Norman.E. Gronlund, evaluation is a systematic process of determining the extent to which educational objectives are achieved by the pupils. This definition indicates that evaluation is a much more comprehensive and inclusive term than measurement. A comprehensive scheme of educational evaluation serves a number of purposes that ultimately contribute to the improvement of instructional methods, textbooks, curriculum and even an advancement of our educational goals.

ACHIEVEMENT:

The achievement tests are classified into oral and written tests. Written tests are classified into essay and objective tests. Objective tests are further classified into standardized tests and teacher-made tests.

In the present investigation it is proposed to use objective type tests. The different types of objective test items used by classroom teachers are listed below.

Recognition type: This includes multiple choice, alternative response, matching, classification items etc.

Recall type: It includes simple recall, completion type items etc.

The objective type tests are advantageous in the following respects.

- a. They test recognition and recall.

- b. More reliable and valid.
- c. They are comprehensive in the sense; all the items of the syllabus can be covered.
- d. Scoring can be done objectively.
- e. Items have discriminating power.
- f. They can be answered in a short time.
- g. Scoring can be done in a short span of time.

Cross Word Puzzle; it's Nature, Mental Abilities and Learning Qualities involved in solving Cross Word Puzzles:

Today cross word puzzles became popular all over the world and gain the favour of the readers. It's not surprise that without publishing a crossword puzzle, any news paper or journal or weekly is delivered. Keeping in view the interest of the readers towards puzzles the organizers have to publish the puzzles compulsorily.

Skills involved:

The skills and learning qualities involved to solve Cross word puzzle are as follows:

- a. Solving Cross word puzzle trains the children in perceiving and establishing inter relationship between items.
- b. School children in overwhelming numbers are quite accustomed to the traditional recitation system consisting of sequential memory. Development of this memory requires a different kind of exercise. Solving cross word puzzle provides such memory training which requires spontaneous recall of items, concepts etc., individually and in any order.
- c. Cross word puzzle gives exercise to the logical and critical thinking. This faculty is important to English grammar.
- d. Solving cross word puzzle makes practice of problems or concepts less painful and provides them a good drill. The student corrects himself when he sees that an answer going across doesn't agree with an answer going down.

Puzzle in English Grammar:

Puzzles challenge pupil's to discover. Solving puzzles involves the process of influence from the known clues to the unknown. This is also an important object in the learning of English.

The purposes of Cross word puzzle enumerated by Dr. Turner are as follows:

- a. They are an aid in word recognition and for creating favourable attitudes for studying English.
- b. To review symbols and basic facts and to give pleasure to the pupil in the form of learning game.
- c. To arouse interest in English puzzles for recreation.
- d. To correlate with English, stress the importance of English knowledge and skills.
- e. To review the fundamental operation and to help the pupils do mental English.
- f. To review English vocabulary.
- g. To add interest to a given topic English in general, to afford an opportunity for review and clarification of concepts and to give pride in the accomplishment of correctly constructing a word puzzle.

Achievement tests whether they are essay type or objective type are defective. Achievement tests are out modes and pupil feels fatigue with these tests as they do not require creativity and thinking. The present trend is novelty in evaluation. Cross word puzzles are not seen in present day text books. They are still in the initial stage. If pupils are given a test in the form of a learning game like puzzles, it creates interest in the minds of the pupil. Cross word puzzles are a pleasure for all and they are fun like and functional. The act of solving a puzzle is educationally rewarding and self satisfying. These puzzles will enhance their study habits.

The above considerations show that Cross word puzzle has the potentiality to become alternative evaluation techniques and they need popularization.

Need for the study:

Studies on evaluation indicated that there is need for innovative techniques of evaluation. The evaluation process for school children should be less tedious, less conventional, more challenging and entertaining. The Cross word puzzle is slowly getting access into textbooks as an alternative to traditional type of exercise. Solving a Cross word puzzle is an entertaining intellectual exercise. The investigator did not come across studies comparing the performance of students on traditional type of evaluation and Cross word puzzles. There are also very few studies to evaluate the worth of Cross word puzzles as evaluation tools. Hence there is much need for research in this direction.

Statement of the Problem:

The general aim of this investigation is to find out if cross word puzzle can be used as an alternative to traditional type of achievement test. For this purpose, the investigator has chosen the following problem

“A comparative study of achievement in grammar and performance on a crossword puzzle in grammar”.

Objectives of the study:

a. To find out if the students perform equally on an achievement test and an English grammar cross word puzzle, both constructed on the same content.

b. To study the performance of prospective secondary school teachers on an achievement test on the following variables:

a. Gender b. Type of the college c. Methodology.

c. To study the performance of prospective secondary school teachers on the crossword puzzle on the following variables:

a. Gender b. Type of the college c. Methodology.

d. To study the relationship between performance on Achievement test and Cross word puzzle in English grammar.

Hypotheses of the study:

Basing on the objectives of the study, the following hypotheses have been formulated.

1. Prospective secondary school teachers differ in their performance on an achievement test and cross word puzzle both constructed on the same content.

2. Prospective secondary school teachers differ in their performance levels on an achievement test on the following variables:

a. Gender b. Type of the college c. Methodology.

3. Prospective secondary school teachers differ in their performance levels on the cross word puzzle on the following variables:

a. Gender b. Type of the college c. Methodology.

4. There is a significant relationship between the performance of prospective secondary school teachers on an Achievement test in English grammar and performance on a Cross word puzzle in English grammar

Review of related literature:

The review of related studies is an essential aspect of the research project. It enables the investigator to find an exhaustive survey of what has already been done on this problem.

The literature to be reviewed should be related to the tasks mentioned above. The literature reviewed is mainly of two categories, namely.

- (A) Theoretical studies and
- (B) Research reports

Of these two categories, especially in the case of problems related to CROSSWORD PUZZLE as evaluation tools theoretical studies provided the major source of background knowledge because research studies with CROSSWORD PUZZLE as evaluation tools are still few and far between.

Keeping the above discussion in view, the previous study has been taken from the following major areas.

- a) Studies related to achievement test construction and related issues.
- b) Studies related to CROSSWORD PUZZLE and related issues especially with reference to their Construction and their use as evaluation exercises and tests.
- c) Research studies if any comparing and contrasting Crossword Puzzles with traditional achievement tests in the context of class room evaluation.

STUDIES RELATED TO ACHIEVEMENT TESTS AND RELATED ISSUES:**THEORITICAL STUDIES:**

The investigator first wants to present some important references related to achievement tests. It is well known that there are varieties of achievement tests but because of the objectives of this investigation the focus directed mainly to objective type and teacher-made tests for class room evaluation. It is also well established fact by now that objective type tests, in spite of a few defects are superior to other type of tests and very useful for research purpose where short duration and accurate measurements of achievement are required.

Thorndike and Hagen¹ (1977) in their book on “Measurements and Evaluation in Psychology and Education” gave a summary of Evaluation of test types i.e. essay type, short answer type, completion and objective types.

Objective type tests being more effective than essay and short answer type tests, it is proposed to choose this type for this investigation. Thorndike and Hagen (1977), Ebel (1966)

and Remmers, (1965) extensively discussed the stages in the construction of an objective type achievement test.

The investigator proposed to construct an objective type achievement test with completion type items only taking into consideration its limited purpose for the investigation and comparability with CROSSWORD PUZZLE clues.

PREVIOUS RESEARCH REPORTS RELATED TO CROSSWORD PUZZLE:

It is true that puzzles and C.W.P.'S have been recognized as useful teaching learning material by educational and text book writers, for a long time now. They have found a respectable place in the text books and journals of Mathematics education. Unfortunately, there is little evidence of any research work dealing with cross word puzzles and their use in Mathematics education. After an extensive survey of both research and theoretical literature the investigator could come across with few research studies.

Dr. Sastry D.S.N. (1993) conducted a study on “Do children need special instruction solving recall and recognition items such as mathematics crossword puzzle?”

The sample consisted of 50 pupils studying class VIII and 45 teacher-trainees offering mathematics methodology in their B.Ed course admitted in the A.J. College of Education, Machilipatnam. The tool used is a mathematical crisis crossword puzzle on tests prepared by the investigator itself.

The important findings of the research are. The pupils have much familiarity with the terms used in the unit sets. The teacher-trainees have much familiarity with the content. Since all the clues are reproduced verbatim from the text book and the clues are in the completion type, the probable answer that the pupils may not be able to understand the clues was rejected. The same findings hold well in the class of teacher trainees also. In the case of teacher-trainees also the above finding is applicable.

Amulya Ratnam, D. (1998) made a comparative study of the performance of Secondary School Children in achievement test and Crossword Puzzle.

The sample was drawn from various schools in Machilipatnam of Krishna District, Andhra Pradesh. A sample of 180 students of 8th class comprising of urban (65 students) and rural (115 students) was selected including 70 boys and 110 girls.

The tools used were Mathematical Crossword puzzle and achievement test in Mathematics (Objective type with completion type items) constructed and validated by Dr.Sastry (1993).

The important findings of this investigation are as follows:

There is no significant difference between the performance of boys and girls on the Mathematics achievement test. The same result holds good in the case of Crossword Puzzles also. There is a significant difference in the performance levels of VIII Class students on Crossword Puzzle and achievement test in Mathematics both. There is no significant difference between the performance of boys and constructed on identical content.

Kavitha, K(2005) made a comparative study of the performance on an Achievement test and a Crossword puzzle test in Mathematics of VIII class students.

The sample was drawn from various schools of Nellore district, A.P. A sample of 240 students of VIII class comprising of urban (120) and rural (120) was selected including 120 boys and 120 girls.

The tools used were mathematical Crossword Puzzle and achievement test in mathematics (objective type with completion type items) constructed and validated by Dr.Sastry (1993).

The important findings of this investigation are as follows:

There is no significant difference between the mean scores of girls and boys on Crossword Puzzle test. Urban students did better on achievement test Crossword Puzzle test when compared to their counterparts. There is a significant difference between achievement test and Crossword Puzzle test both rural and urban areas in favour of the urban area, to achievement test.

Murthy .T.S.V.S.S.N. (2005) made a comparative study of the performance of VIII Class students in Mathematics on an achievement test and Crossword puzzle.

Sreenivasulu .Y (2008) made a comparative study of the performance of IX Class children in a Social studies achievement test and cross word puzzle.

For the present investigation the investigator selected three secondary schools and 180 students of IX class from them as a sample for the study. Of them 120 girls and 80 were boys.

The major findings of this investigation are as follows:

There is a significant positive relationship between the performance of IX class students on achievement test and on cross word puzzle constructed on the same content in social studies. Secondary school IX class students differ in their levels of achievement in social studies. There is a significant difference in the performance of boys and girls in social studies achievement test. There is a significant difference in social studies achievement test between single sex and co-education secondary school IX class students. Secondary school IX class students differ in their levels of cross word puzzle in social studies. There is a significant difference in social studies cross word puzzle between boys and girls IX class students. There is a significant difference in social studies cross word puzzle between single sex and co-education secondary school IX class students.

Prasanthi .M (2008) made a comparative study of the performance of IX class and X class students in English on an achievement test and Crossword puzzle in English grammar.

The sample for the present investigation was drawn from various schools in Machilipatnam, Pedana and Gudivada mandals in Krishna District. Three hundred students studying IX and X classes were drawn as sample for the present study from various schools in the three mandals mentioned above.

The major findings of this investigation are as follows:

The secondary school students differ significantly in their performance on achievement test and crossword puzzle prepared with identical content in English Grammar. The sample scored higher on crossword puzzle when compared to the performance on achievement in English Grammar. Nearly 64% of the total sample comes under the average level in achievement. The low achievers group with 19% in achievement test. Similarly 17% of the sample comes under the high achievers group in achievement test. The Sex of the secondary school students makes no significant difference on their performance in English Grammar. The type of institution in which

the secondary school students study makes a significant difference in their performance on an achievement test in English Grammar.

Nearly 77% of the sample comes under average level performance group in crossword puzzle test. The low achievers group consists of 10% (10.24%) and 19% (19.16%) of the sample comes under the high achievers group in crossword puzzle test. The sex of the secondary school students makes a significant difference in their performance on the crossword puzzle in English Grammar.

Methodology:

As the present research is concerned with collecting data from the population with the help of a test, this investigation comes under the broad category of survey research. This is a descriptive type research as it aims to analyze and describe the performance of a group of students on an achievement test and a Cross word puzzle. Because this investigation wants to find out the feasibility of a cross word puzzle as an alternative to traditional evaluation methods, it comes under the area of evaluation of research.

Sample of the study:

The sample for the present investigation was drawn from two Teacher education colleges from Machilipatnam in Krishna District. 151 students studying B.Ed in these two colleges were drawn as sample for the present study.

Tools used for the study:

The objective of the study is to make a comparative study of the achievement of the prospective teachers on an achievement test and a cross word puzzle in English grammar constructed on an identical content. The tools were prepared and standardized by Prasanthi.M (2008) had been used here for the present study.

The tools were

1. Achievement test in English grammar.
2. Cross word puzzle in English grammar.

The grammar items included in the test are presented in the following table.

S.No	English grammar item	No of test items
1	Prepositions	2
2	Articles	2
3	Parts of speech	2
4	Correct form of verb	2
5	Opposites	2
6	Choosing the right word	2
7	Complete the word	2
8	Active voice and Passive voice	5
9	Direct and Indirect speech	5
	Total	24

Statistical Techniques used:

For the analysis of the data the following statistical techniques have been used.

1. Mean
2. Critical Ratio
3. Standard Deviation
4. Product Moment Coefficient of Correlation

Data Analysis:

After the data has been collected, it must be processed and analyzed to draw proper inference. The first step in the analysis is the classification. It means arranging the data in different classes or groups according to their similarities and dissimilarities.

Description of the sample – Variable wise:

Variable	Description	Number	Total
Gender	Boys	30	151
	Girls	121	
Type of the college	Single sex	79	151
	Co-education	72	
Methodology	Maths	35	151
	Physics	21	
	Biology	21	
	Social	74	

Hypothesis No: 1

Prospective teachers differ significantly in their performance on an achievement test and cross word puzzle prepared with identical content in English grammar.

To test this hypothesis, the Means and S.Ds of the total sample on achievement test and cross word puzzle were computed. Coefficient of correlation was also computed. Critical Ratio was calculated.

The Mean, S.D values of total sample achievement test are 17.49, 3.6 and Cross word puzzle are 15.20, 4.11 respectively. After the statistical treatment the obtained C.R value (5.20) is greater than 2.58. Hence, the Null hypothesis is rejected. Therefore, the prospective teachers differ significantly in their performance on achievement test and cross word puzzle prepared with identical content in English grammar. The sample scored higher on achievement when compared to the performance on cross word puzzle differ with Prasanthi.M (2008).

Hypothesis No:2.a

Gender of the prospective teachers makes a significant difference in their performance on an achievement test in English grammar.

To test this hypothesis, Means and S.Ds of the two groups namely males and females (Females Mean and S.Ds are 17.6 and 3.6 and Males Mean and S.Ds are 17.8 and 3.7 respectively) were computed. After statistical treatment the obtained C.R value (0.27) is less than 1.96. Hence it is not significant at 0.05 level. The Null hypothesis is retained. In other words gender of the prospective teachers makes no significant difference in their performance on achievement test in English grammar.

Hypothesis No: 2.b

Type of the college makes a significant difference in the performance of students on an achievement test in English grammar.

The Means and S.Ds of the two types of colleges namely Single sex and Co-education (Mean of single sex is 17.2 and the S.D is 3.4 and the Mean of Co-education is 17.8 and the S.D is 3.7 respectively) were computed. After the calculations the obtained C.R value (1.03) is less than 1.96. Hence, it is not significant at 0.05 level. The Null hypothesis is retained. In other words the type of college makes no significant difference on the performance of students in English grammar achievement test.

Hypothesis No: 2.c

Methodology of the prospective teachers makes a significant difference in their performance on an achievement test in English grammar.

The Means and S.Ds of different methodologies are given below:

Subject	Mean	S.D
Maths	17.7	3.6
Physics	17.8	3.6
Biology	17.6	3.5
Social	17.5	3.6

To test this hypothesis the Means and S.Ds of all the methodologies were computed. After the calculations the obtained C.R values of all methodologies (0.10, 0.92, 0.27, 0.18, 0.34 and 0.11) are less than 1.96. Hence, they are not significant at 0.05 level. In other words the methodology of the prospective teachers makes no significant difference in their performance on achievement test in English grammar.

Hypothesis No: 3.a

Gender of the prospective teachers makes a significant difference in their performance on Cross word puzzle in English grammar.

To test this hypothesis, Means and S.Ds of the two groups namely males and females (Females Mean and S.Ds are 15.2 and 4.1 and Males Mean and S.Ds are 14.6 and 4.4 respectively) were computed. After statistical treatment the obtained C.R value (0.68) is less than 1.96. Hence it is not significant at 0.05 level. The Null hypothesis is retained. In other words gender of the prospective teachers makes no significant difference in their performance on the Cross word puzzle in English grammar.

Hypothesis No: 3.b

Type of the college makes a significant difference in the performance of students on Cross word puzzle in English grammar.

The Means and S.Ds of the two types of colleges namely Single sex and Co-education (Mean of single sex college is 15.7 and the S.D is 3.80 and the Mean of Co-education is 14.6 and the S.D is 4.4 respectively) were computed. After the calculations the obtained C.R value 1.66 is less than 1.96. Hence, it is not significant at 0.05 level. The Null hypothesis is retained. In other words the type of college makes no significant difference on the performance of students in English grammar Cross word puzzle.

Hypothesis No: 3.c

Methodology of the prospective teachers makes a significant difference in their performance on the Cross word puzzle in English grammar.

The Means and S.Ds of different methodologies are given below:

Subject	Mean	S.D
Maths	14.98	4.1
Physics	15.09	4.2
Biology	15.08	4.08
Social	15.20	4.1

To test this hypothesis the Means and S.Ds of all the methodologies were computed. After the calculations the obtained C.R values of all methodologies (0.095, 0.088, 0.26, 0.007, 0.10 and 0.119) are less than 1.96. Hence, it is not significant at 0.05 level. The Null hypothesis is retained. In other words the methodology of the prospective teachers makes no significant difference in their performance on the Cross word puzzle in English grammar.

Hypothesis No:4

There is a significant relationship between the performance of prospective teachers on an Achievement test in English grammar and performance on a Cross word puzzle in English grammar.

To test this hypothesis scores of the total sample on Achievement test and Cross word puzzle are considered. Product moment coefficient of correlation is computed. The obtained value is 0.56. It is greater than the table value 0.208 for d.f 149 (Garrette 1981, pg.No.201). The Null hypothesis is rejected. In other words there is a significant relationship between the performance of prospective teachers on an Achievement test in English grammar and performance on a Cross word puzzle in English grammar.

Findings:

1. The prospective teachers differ significantly in their performance on achievement test and cross word puzzle prepared with identical content in English grammar.

The sample scored higher on achievement test when compared to the performance on cross word puzzle in English grammar.

2. The gender of the prospective teachers makes no significant difference in their performance on achievement test in English grammar.

3. The type of the college makes no significant difference in their performance on achievement test in English grammar.
4. The methodology of the prospective teachers makes no significant difference in their performance on achievement test in English grammar.
5. The gender of the prospective teachers makes no significant difference in their performance on Cross word puzzle in English grammar.
6. The type of the college makes no significant difference in their performance on cross word puzzle in English grammar.
7. The methodology of the prospective teachers makes no significant difference in their performance on cross word puzzle in English grammar.
8. There is a significant relationship between the performance of prospective teachers on an Achievement test in English grammar and performance on a Cross word puzzle in English grammar.

Conclusion: Many of the teachers and students may be familiar with crossword puzzle of different types published in magazines, news papers etc., in order to familiarized them in the study materials like text books, question banks,etc.,The education department should introduce cross word puzzles as exercises at the end of each chapter and cross word puzzles may be introduced initially in the class room tests (internal examinations).

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