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Research Paper

Gender Difference on Retention of Similar and Dissimilar Pairs of Cognitive Competency among High School Students

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ABSTRACT

Memory is an innate process that complements changes in the cognitive competencies and functionality of the individual but research among student was very few. The gender gap has been found in neurocognitive functioning including memory. The aim of the study was to find out the gender difference on neurocognitive functioning especially in verbal retention for similar and dissimilar pairs among high school students. Following random sampling technique, a total of 200 Mizo high school students (100 males and 100 females) in the age range of 16-17 years were recruited from Rural and Urban area of Mizoram employing the PGI-Memory Scale Constructed (Pershad, 1977). The findings revealed that female students scored higher on both verbal retention for similar pairs and verbal retention for dissimilar pairs than male students, and the two memories have positive significant relationship. The results of the study illustrated the gender difference on neurocognitive functioning which can suggest that the need of a separate psychological intervention for the two genders.

Keywords: *Cognitive, Memory, Similar, Dissimilar, Student*

Memory is one of the most important cognitive functions of living organisms. Tulving & Craik (2000) define memory as the means by which we retain and draw on our past experiences to use that information in the present (Tulving, 2000b; Tulving & Craik, 2000). Sex differences and similarities in cognitive abilities is a continuing topic of major interest, and have been examined explicitly (Herlitz, Nilsson, & Backman, 1997). Studies have examined the relationship between gender and memory test performance in adults have found a significant relationship (McGivern et al., 1998; Ruff, Light, & Quayhagen, 1989) while other studies finding no relationship (Freides & Avery, 1991) between gender and memory test scores. Similarly, research investigating the association between memory test scores and gender in children and adolescents has produced mixed results (Abbott, Berninger, & Busse, 1997; Ullman, McKee, Campbell, Larrabee, & Trahan, 1997). Temple and Cornish (1993) assessed gender differences among non-clinical samples on a verbal memory recognition task and found that females outperformed males on this verbal memory task. Huang (1993) found Chinese adolescent girls outperformed adolescent boys on a verbal memory task. Therefore, this present paper is concerned with gender differences in verbal memory task among Mizo high school students

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and highlights the potential correlation on verbal retention with gender to improve academic performance and ensure more effective learning by keeping good memory retention skills.

Aim of the study:

The aim of the study was to examine, Gender Difference on Verbal Retention of Similar and Dissimilar Pairs of Cognitive Competency among High School Students

Objectives:

The following objectives were framed:

1. To determine gender difference between male and female on verbal retention for similar and dissimilar pairs.
2. To examine any relationship between verbal retention for similar and dissimilar pairs

Hypothesis: The study has hypotheses to meet the objectives of the study as a follow:

1. Female samples will scored higher on verbal retention for similar and dissimilar pairs.
2. There will be a positive correlation between the verbal retention for similar and dissimilar pairs.

METHODOLOGY

Sample

200 male and female high students were selected from different High Schools in Aizawl city following random sampling procedures, age range between 12 to 16 years.

Tool used

The PGI-Memory Scale Constructed by Pershad (1977) and Pershad and Wig (1977). The Post Graduate Institute Memory Scale gives a valid clinical evaluation of memory functions. It also confirmed the two hypotheses set to demonstrate its validity: a) Content Validity (b) Face Validity (c) Construct Validity. The PGIMS contained 10 sub-tests, but the present study employed the two subscales - Verbal Retention for similar and dissimilar pairs – Two series for associative pairs were prepared. One for similar pairs and another for dissimilar pairs. For familiar associates, 5 simple meaningful words were selected from primary school books. The maximum score would be 5. For the dissimilar pairs, again five pairs and one mark each for correctly reproduced word of the pair, separately for each trial. Summation of marks on three trails was the score for this test and the maximum score would be 5+5+5=15.

Design

The study was Correlational design to compare between male and female on verbal retention for similar and dissimilar pairs to meet the objectives of the study.

Procedure

To meet the objectives set-forth, 200 hundred male and female high students were selected from different High Schools in Aizawl city following random sampling procedures, age range between 12 to 16 years. The required permission were taken from authorities and consent were taken from the participants after informing about the study. The PGI Memory Scale was administered with a due care of the instructions given in the manual and also APA code of ethics for research.

RESULTS

The raw data was checked for missing an outlier to be free from substandard data. The data was analyzed for descriptive statistics to depict the means differences and the descriptive statistics showed difference score between male and female on both similar (M=5.31; 6.40) and dissimilar (M=7.51; 11.78) memory task; female samples scored higher on both similar and non-similar memory as the independent t test results showed that female scored significantly higher than male sample on both similar memory (t-test =.2,67; p<.01) and dissimilar memory (t-test =2.77; p<.01); spearman's rho correlation between similar and dissimilar memory also showed significant positive correlation (r=.48; p<.48).

Table: Showing Mean, SD, Kurtosis, Skewness, t test, correlation on similar and non similar memory for male and female. sample

Gender		**Similar**	**Dissimilar**
Male	Mean	5.31	7.51
	Std. Deviation	2.26	2.58
Female	Mean	6.40	11.78
	Std. Deviation	1.13	2.47
t-test between male and female		2,67**	2.77**
Correlation between similar and non similar memory		r =.48** (Spearman's rho)	

CONCLUSION

The aim of the study was "Gender Difference on Retention of Similar and Dissimilar Pairs of Cognitive Competency among High School Students", 200 high students with equal match of male and female were selected from different High Schools located in Aizawl. The PGI Memory scale was administered to the samples. The results highlighted that a significant difference score between male and female on both verbal retention for similar and dissimilar pairs which accepted the first hypothesis, and also got a support of earlier finding that a significant relationship was found between memory and gender (McGivern et al., 1998; Ruff, Light, & Quayhagen, 1989), and female out performed male on verbal memory task (Temple & Cornish, 1993). The result of spearman's rho correlation between similar and dissimilar memory also showed significant positive correlation (r=.48; p<.48) that accepted the second hypothesis and also supported by earlier finding that retention on these tests on similar pairs increases retention on dissimilar pairs as the amount of practices increased (Ebbinghaus,1993; Krueger, 1929; Postman, 1962).

Limitations

The study has a limitation that the sub-areas of memory of the PGI scale were not included only two areas were observed, and many factors of memory were not covered except much tempting gender effects. It is suggested that future researchers should attempt to replicate these findings in a broader range of populations with more areas of memory.

Significant of the study

The study highlighted the potential sex differences in memory function, which extend to verbal retention memory. It suggested that future work evaluating the sex-specific effects on memory with molecular mediators of memory to help to understand the memory function and to improve memory-enhancing interventions development and implementation.

Implications

Students must be screened to identify the strengths and weaknesses of their memory profile for effective management and support to bolster learning. As Yuan et al. (2006) highlight, improving Working memory capacity holds the promise of providing students with more cognitive resources for both knowledge acquisition and application. It may not only improve students' current achievement, but more importantly, also enhance their lifelong learning.

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Declaration

This article is taken out from the work of the Ph D research of the main author, not published anywhere in any form of publication.

Conflict of Interest
The author(s) declared no conflict of interest.

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