

# Literature vs non-Literature students: A Study of Verbal and Visual Memory of the LPU Undergraduates (3rd Year)

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## Abstract

Short term memory is essential to perform any intellectually sophisticated task. The present study compares the verbal and visual short term memory test scores of literature and non-literature students. The testing was done using visual and verbal memory tests available online. The tests were distributed through google forms, links to which were spread randomly through social media and messaging apps. The sample was 86 3<sup>rd</sup> year undergraduate students, from various disciplines including english literature students, against whom non-literature students' test scores were compared. The mean/median visual memory test score for literature and non-literature students was found to be 8.61/9 and 8.93/9 respectively.

Furthermore, the mean/median verbal memory test score for literature and non-literature students was found to be 32.53/30 and 22.60/22.5 respectively.

**Keywords:** Verbal Memory, Visual Memory, Short term memory.

Humans have the ability to retain visual and verbal information over brief periods of time, we can retain visual information like objects, places and people, as well as verbal information, like words in our memory. Visual memory is a type of memory which retains some characteristics of our senses concerning visual experience (Berryhill 2008). Memory in general, is divided into at least three categories, Long Term Memory (LTM), Short Term Memory (STM) and Sensory Memory (SM) and when concerned with visual memory, Visual Long Term Memory (VLTM) and Visual Short Term Memory (VSTM), the present study is concerned with Visual Short Term Memory. For the measurement of short term memory, digit span tests are often used. (Gary Jones and Bill Macken 2015). Immediate memory span, was originally devised by Jacobs (1887) and is frequently measured through the exercise of

recalling digit sequences immediately after being shown or recited to the subject. The average number of digits a person can recall is about 5 to 9 (Miller, 1956) and a significant correlation has been reported between immediate memory and intelligence in some researches (Wechsler, 1974; Kubota 1965). And as such, this type of test is often included in Intelligence tests.

Furthermore, this is not the only memory span test. Ichikawa (1982) proposed an alternate method for measuring memory span, this has more visual aspect to it and includes recall of dots within 5 x 5 or 6 x 6 matrix. A similar type of test is used in this research, hosted on a website.

Verbal memory is a broad concept in cognitive psychology and refers to the ability to retain presented words in memory (Itaru F. Tatsumi, Masumi Watanabe 2009). These words can be held in memory for a long or short period of

time. The present research is concerned with short term verbal memory or STVM. Learning of word lists, story recall, and learning of sequences of paired words are some of the tasks used to assess verbal memory skills. In listlearning, the participant is asked to recall a word list that was delivered to them orally, either immediately or several minutes later. When the participant is asked to recall them

immediately, this is known as “immediate recall” and when there is a delay introduced into

the recall it is called “delayed recall”. The test that this study uses falls under the category of delayed recall tests where the participant is asked to memorize new words as they are presented on the screen and then is prompted after each word to determine if he/she has seen that particular word previously in the test or not. This goes on until the participant commits three errors.

The present study tries to take both of these concepts and compare the test scores of literature students and non-literature undergraduate students in their third year.

### Research questions

Research questions that we tried to address are:

1. What are the differences between verbal memory test scores between literature and non-literature students?
2. What are the differences between visual memory test scores between literature and non-literature students?

### Hypotheses

For this study, the following hypotheses were tested:

H1: There is a statistically significant difference between the verbal memory test scores of literature and non-literature students.  
H2: There is a statistically significant difference between the visual memory test scores of literature and non-literature students.

H0: There is no statistically significant

difference between visual and verbal memory test scores of literature and non-literature students.

### Literature Review

There has not been much research that is related directly to the topic of this study.

However, there has been some research that is related. One of them is research done by Shinichi Ichikawa (1983) where verbal and visual memory spans along with their correlation with various cognitive tasks was studied, his results indicated that the two immediate memory tests that he included, were correlated to various degrees with each of the cognitive tasks

selected from intelligence tests. Through Factor analysis, he found that the digit span score was related to the ‘verbal’ factor while the score for the visual span was related to the ‘visuospatial’ factor. Results also suggested that the immediate visual and verbal memory spans were independent from each other.

Angela Mae Foil Ellision (2017) researched the differences between short term memory capacities of children with intellectual giftedness, children receiving general education and special education services.

Through ANOVA analysis she found statistical differences between the intellectually gifted, children receiving special education, and children receiving general education. However, these differences were not large. The mean score was bit higher for intellectually gifted children in remembered words.

### Methodology

The research is quantitative in nature as the test scores are quantitative and utilizes google forms for the distribution of test links. The google forms links were distributed through the use of social media and messaging apps.

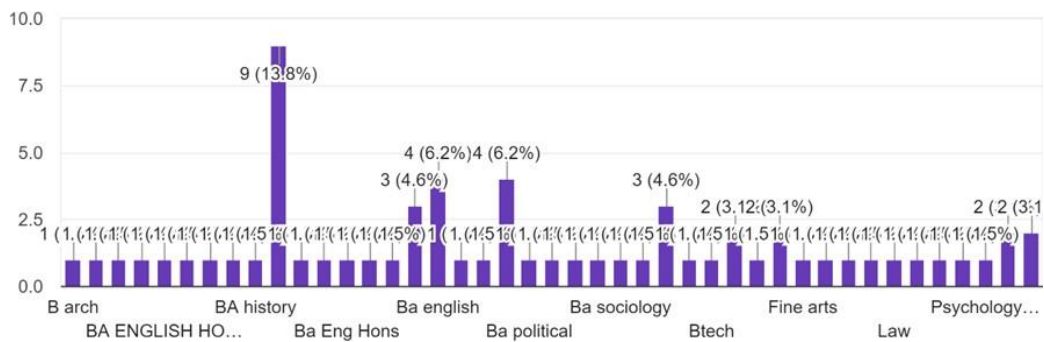
We formed questionnaires in respect to the information we’ll get from the two groups. The non-literature group was supposed to fill the questionnaires by writing their exact courses which helped us determine whether our sample is diversified or not. Later on everyone was supposed to participate in two tests whose links were attached in the google forms, so the

participant was directed towards the website, namely humanbenchmark.org. The participant was supposed to take each test three times in order to avoid accidental failure. Finally he/shewas supposed to take a screenshot of the score and upload it on the google forms, so as to ensure scores are genuine.

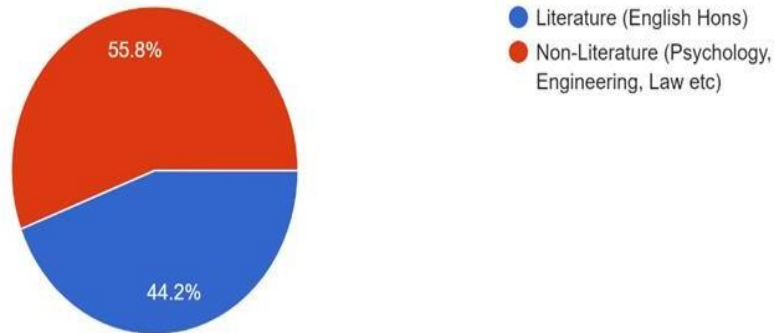
Finally in order to evaluate the results we bifurcated the two groups and calculated their mean and median scores separately. At last we interpreted the score and represented it through tables.

### Participants

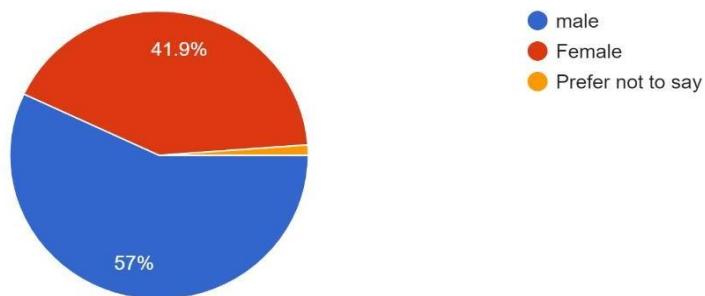
1. Our research had 86 participants among which 36 were female, 49 were male and 1 preferred not to say. The participants were only third year students and were from various department such as, architecture, fine arts and law. Our responses were divided among two groups literature and non- literature students, literature consisting of 44.2% and non-literature consisting of 55.8%, which shows we took equal participation of both the groups and considered their responses.



Course  
86 responses



Sex  
86 responses



## Result and Discussion

### Test #1 Scores

**Table 1**

Groups	Mean	Median
Literature	8.61	9
Non-literature	8.93	9

The mean visual memory test score for both the groups literature and non-literature students came out to be 8.61 for literature students and 8.93 non-literature students. The median of literature students and non-literature

students came out as 9. which shows that

literature does not help in your visual memory because if it did then literature students would have scored higher.

### Test #2 Scores

**Table 2**

Groups	Mean	Median
Literature	32.53	30
Non-Literature	22.60	22.5

The mean score of short-term verbal memory among literature students came out to be 32.53 and the mean score of non-literature students was 22.60. Median of literature students was 30 and median of non-literature students was 22.5. The higher score of literature students shows that they are better with memorisation of words in their short-term verbal memory.

students.

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### Conclusion

Our research was about finding out the difference in short term verbal and visual memory between two groups, literature and non-literature students.

The difference between test #1 which is short term visual memory test, was not significant with just a difference of 0.32 in mean, whereas the median was same. This contradicts the first hypothesis and suggests that a literature and a non-literature student may possibly have same short term visual memory capacity.

But the difference between two groups in Test #2 which is short term verbal memory test came out to be significant, supporting the second hypothesis. The mean and median of both literature and non-literature students was 32.53/30 and 22.6/22.5 respectively, which suggests literature students may have better short term verbal memory than non-literature

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