“Is the narrative story method of mnemonics effective for students memory recall?”

Literature Review

A mnemonic is a technique or device that uses familiar associations to enhance the storage and recall of information into memory, that is, techniques used to improve memory (Solso, Maclin & Maclin, 2005). The aim of mnemonics is to translate information into a form that the brain can retain better than its original form. O’Hara et al. (2007) conducted a study to examine the long-term effects of mnemonic training in community-dwelling older adults. The purpose of this study was to examine the long-term effect of mnemonic training on memory performance in older adults. Participants who took part in the study were 112 community-dwelling adults 60 years of age or older. Their findings suggest that mnemonic training has long-term benefits for some older adults, particularly those who continue to use the mnemonic. The authors of this study used participants who were similar in age with both control and study group being matched in age range. This research is important as it shows that older adults who are often prone to memory loss can improve it with the use of mnemonic techniques or devices.

The narrative story method of mnemonics, also referred to as narrative chaining, involves linking a list of words together to form a story using fluid vivid imagery. Bower & Clark (1969, as cited in Loftus & Loftus, 1976) found that when participants were instructed to memorise a list of words by organising the words using the narrative story technique their recall increased by at least 50%. The narrative story method is also one of the most basic memory techniques. Bower (1973, as cited in Loftus & Loftus, 1976) found that memory recall improved with the use of imagery techniques, such as the narrative story method. It works by coding information to be remembered into images and then linking these images together. Linking images together into a story will help to keep events in a logical order and can improve ability to remember information if sequence of images has been forgotten.

In a study conducted by Stalder and Olson (2011), they report on the potential for mnemonics to help students learn, enjoy, and become less apprehensive about statistics. Sixty-one undergraduates completed anonymous semester-end surveys for extra credit.
from two sections of an introductory psychology statistics course at a Midwestern American university. The surveys reviewed 11 mnemonics provided during the semester and asked four questions about each. Participants rated 8 of 11 mnemonics as significantly memorable and helpful in learning statistics. Other measures indicated a relatively high regard for the overall use of statistical mnemonics. In particular, mnemonics were rated as motivating and fun. Students also reported some belief that mnemonics could reduce statistical anxiety. This study is useful because it shows and evaluates how useful mnemonics can be when learning statistics. The authors understand their limitations of the study as the design was non-experimental and did not demonstrate actual improvements in performance due to mnemonics. The study was only based on participants perception of the mnemonics used in the study. This research is important for further use as it suggests students studying statistics can improve their ability to learn therefore will reduce anxiety levels related to statistics and other benefits such as improved grades.

Method

Design

This study was a Mixed Model Complex Design. There were two independent variables being tested: memory recall (before and after use of mnemonics, k = 2) and gender between males and females after the use of the mnemonic narrative story technique (k = 2). The dependent variable being tested was the amount of words recalled after each condition.

Participants

Forty-seven participants took part in this experiment: 18 male and 29 female. Participants were undergraduate students from a third level institution ranging from the ages of 18 to 25 years (M = 20.34, SD = 1.646). Participants were selected by convenient sampling.

Materials/Apparatus

What was needed to complete this experiment was: two lists of words needed to complete each condition (Carlson, Martin and Buskist, 2003) (see Appendix A), a stopwatch was used to time each distracter task, Microsoft Excel was used to record data from the experiment,
IBM SPSS version 20 was used to calculate the Independent and Paired-Samples t-test for the study, [http://tinyurl.com/7b3ro7n](http://tinyurl.com/7b3ro7n) was used to learn about the narrative story technique.

**Procedure**

The brief and instructions were first read out to participants. Consent for this study was not needed as students were participating voluntarily as part of a continuous assessment. There were two phases to this study, the before condition and the after condition. Participants first completed the before condition of the memory test which involved listening to a number of words from a list, then by using free recall writing down as many words they remembered from the list without use of the narrative story mnemonic technique. Participants then were asked to complete a distracter task which involved writing down all the types of food they could think of beginning with the letter “p” in 60 seconds. The after condition was then completed. This involved the same steps as the before condition except participants used the help of the narrative story mnemonic technique. Participants then completed a second distracter task which involved writing down all the types of animal they could think of beginning with the letter “b” in 60 seconds. Participants were then asked to count the number of words they remembered from each condition and enter them into an excel document.

**Results**

The first hypothesis in this study was testing to see if there will be a significant difference on participants in memory recall after use of the mnemonic narrative story technique. The second hypothesis in this study was testing to examine if there will be a significant difference in female scores compared to male scores after recall with the use of a mnemonic technique.

**Descriptive Statistics**

In Table 1., the mean and standard deviation calculation for all participants in the before condition without the use of a mnemonic technique and for the after condition with the use of a mnemonic technique are shown.
Table 1. Before and After Conditions Descriptive Statistics.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
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<tbody>
<tr>
<td>Before</td>
<td>9.66</td>
<td>2.50</td>
<td>47</td>
</tr>
<tr>
<td>After</td>
<td>11.66</td>
<td>3.39</td>
<td>47</td>
</tr>
</tbody>
</table>

As shown in Figure 1., the mean calculation for the male scores for the after condition (N = 18) was 10.89 and standard deviation was 3.31. The mean for female scores for the after condition (N = 29) was 12.14 and standard deviation was 3.41.

![Figure 1. Mean and Standard Deviation of Female and Male Scores for the After Condition.](image)

**Figure 1.** Mean and Standard Deviation of Female and Male Scores for the After Condition.

**Inferential Statistics**

In the present study, a paired-samples t-test (see Appendix B) was conducted to compare the level of participants memory recall before and after the use of a mnemonic technique. A significant difference was observed between the participants scores for the before condition (M = 9.66, SD = 2.50) and the after condition (M = 11.66, SD = 3.39), t(46) = -3.85, p < .05. These results suggest that with the use of a mnemonic technique participants were able to recall more words with the use of the mnemonic narrative story technique. A 95%
Confidence Interval demonstrated that the true difference between the groups falls within the range of -3.05 and -.95. While this range is relatively broad, it is removed from zero and thus the researcher can be 95% confident a higher score for the mnemonic condition would be observed upon replication.

An independent t-test (see Appendix C) was conducted to compare scores between males and females after the use of the mnemonic narrative story technique. It was hypothesised that females would have a higher score than males after use of a mnemonic technique. There was no significant difference in the scores for the female (M = 12.14, SD = 3.41) and male (M = 10.89, SD = 3.31) conditions; t(45) = -1.235, p = .233.

**Discussion**

The present study was designed to examine if there would be a significant difference on participants in memory recall after use of the mnemonic narrative story technique and to examine if females recalled more words than males after use of a mnemonic technique. After conducting the experiment and calculating the results using a paired-samples t-test it was found that there was a significant difference between condition 1 and condition 2. Therefore from the data collected the alternative hypothesis that there would be a difference between the before and after conditions (H_a) was accepted as there was a difference for the participants in the number of words recalled in the after condition. These results suggest that with the use of the mnemonic narrative story technique memory can improve. An independent samples t-test was conducted to examine if females would recall more words than males after using a mnemonic strategy. From the results it was found that there no significant difference between female and male scores. Therefore the null hypothesis that there would be no difference is accepted and the alternative hypothesis that females would score significantly higher than males is rejected. These results suggest that gender does not have an effect on memory recall after using the mnemonic narrative story technique.
References


