Concreteness effect replication

Romesh Bhagratee

SBS 2000: Research Methods for the Social Sciences

Prof. D. Meredith

5/20/2024

Abstract

The concreteness effect refers to the phenomenon where concrete words (words that represent tangible objects or experiences) are better remembered and understood compared to abstract words (words representing concepts or ideas). The concreteness effect occurs, because our brains are wired to process concrete information more easily than abstract information. For example, Concrete words activate sensory, and perceptual areas of the brain, making them more vivid and memorable compared to abstract words, which require more mental effort to process. During this experiment I ran a T-test in order to examine the concreteness effect from a small sample of undergraduate students (17). The results acquired is t(16)= -1.06134, p = .14, and according to these results there is not a statistical significance, because the p value is over .10.

Concreteness effect replication

The concreteness effect is a cognitive phenomenon where concrete words, representing tangible objects or experiences, are better remembered and understood than abstract words, representing concepts or ideas. This occurs because concrete words activate sensory, and perceptual areas of the brain, making them more vivid and easier to process than abstract words, which require more mental effort. The concreteness effect highlights the human brain's preference for tangible, sensory-rich information, leading to improved memory retention and comprehension of concrete concepts over abstract ones.

This experiment was done in order to test the concreteness effect. However, to test the concreteness effect, an experiment was conducted utilizing a t-test analysis on the data provided in the spreadsheet. Students/Participants were presented with a mix of concrete and abstract words to study their memory recall. The results were analyzed using a t-test to determine if there was a significant difference in recall between concrete and abstract words. In this experiment, we predict that when people are exposed to a list of concrete, and abstract words people will be able to remember concrete words more easily compared to abstract words.

Method

Participants

The participants of this study are 17 undergraduate students enrolled in a research methods course.

Procedure

This experiment was done online as part of a research methods course, and it was made up of 22 words. The goal of this experiment was to document your answers (best to use a pen and paper), and to do this the professor will read a list of words which you will then write down as many as you can remember, but you can only write the words you remember after he is done reading the words. For example, one concrete word was house where the abstract word was happy.

Results

 In order to determine if there is a difference in people's tendency to remember concrete words compared to abstract words in a short term memory task, a repeated measures t-test was done. The results indicated that with $t(16)= -1.06134$, $p= .14$, there was not a significant difference between people's tendency to remember concert, and abstract words. This means that whether a word was concrete ($M=4.7$, $SD=1.23$), or abstract ($M= 4.3$, $SD=1.23$) its influence was remembered (See figure 1).

Discussion

Based on the results of the repeated measures t-test involving 17 undergraduate students, it was found that there was no significant difference in individuals' memory recall for concrete words compared to abstract words in a short-term memory task $t(16) = -1.06134$, $p = .14$. The mean memory score for concrete words ($M = 4.7$, $SD = 1.23$) was comparable to that of abstract words ($M = 4.3$, $SD = 1.23$), indicating that the concreteness of a word did not have a significant impact on its memorability. These findings suggest that, in this particular study, the concreteness effect, which typically favors the recall of concrete over abstract words, was not observed among the participants.

Furthermore, considering the potential influence of hobbies on memory recall, such as individuals with a car interest, could introduce an intriguing facet to the study. Exploring whether individuals with a passion for cars exhibit a heightened ability to remember words related to automobiles or mechanical concepts, regardless of concreteness, could offer valuable insights into the interaction between personal interests and memory processes. Investigating how hobbies intersect with memory performance could unveil unique patterns of word recall associated with specific interests, showing the complexity between personal experiences and cognitive functions. This type of research presents an opportunity to delve into how individual passions shape memory encoding and retrieval processes, providing a fresh perspective on the concreteness effect within diverse personal interest contexts.

References

(2024). Yuja.com. https://citytech.yuja.com/V/PlayList?node=28661368&a=1837525816

Sadoski, M., Kealy, W. A., Goetz, E. T., & Paivio, A. (1997). Concreteness and imagery effects in the written composition of definitions. *Journal of Educational Psychology*, *89*, 518–526. https://doi.org/10.1037/0022-0663.89.3.518

Figure 1

Table of means