Candidate 2 evidence

Higher Psychology Assignment

Recall of Words Depending on Location

Scottish candidate number

Word count: 2,248

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Introduction

Memory is a part of the mind responsible for receiving and storing information which can be retrieved when needed. In memory, three information processes take place. These include encoding, storage and retrieval.

However, memory is often subject to forgetting and one concept of forgetting is cue dependent forgetting. This concept suggests that when we first learn information, cues are stored along with it, by triggering a cue it allows retrieval of the forgotten information from long term memory (LTM). Cues are a type of reminder that let the individual retrieve information stored in LTM. There are two cue types: state cues and context cues. State cues involve being in the same mental and/or physical state as when information was received e.g. feeling anger. When feeling anger, we may remember something that happened the last time we felt angry. Context cues involve being in the same environment as when information was received e.g. being in a childhood home. For example, we may have forgotten a childhood memory, but it comes back to us when in our childhood home.

In many cases of forgetting, these cues can also help when we are struggling with the 'tip of the tongue' phenomenon. Sometimes, when we have forgotten something because we don't use the word very often (or merely just due to forgetting), we remember specifics of the word but not the word itself. Most of the time the first letter of the word or a word sounding similar can allow us to recall it.

Godden & Baddeley (1975)

The aim of the Godden and Baddeley study (1975) was to discover the impact of context cues on recalling and learning words underwater or on land. The study consisted of 18 divers who took part in a word list recall task. The divers were instructed to learn words from a list of 36 words, each containing two or three syllables, half of the divers did this underwater, and half of the divers did this on land. Participants were then split again, and half the underwater learners went to land to recall, and half the land learners went underwater to recall. The results showed that when words were learned and recalled in the same environment participants performed significantly better (i.e. divers that learned and recalled the words underwater).

Tulving & Pearlstone (1966)

In this study by Tulving and Pearlstone (1966), researchers aimed to show that word recall can be heightened when asked to recall words from a category compared to free recall. Participants were given a list of words to memorise, some of which fell into a category (e.g. bird types). They were then asked to recall the words; one group recalled freely, and the other group recalled from specific categories (i.e. 'recall any words from the list' or 'recall any bird types from the list'). Those who recalled with a cue were able to recall more

words than participants who recalled without a cue. These results indicate that when provided with suited cues, retrieval is more likely.

Aim:

The aim of this study was to determine if word recall from a list could be impacted by differences in context cues (location).

Hypothesis:

The hypothesis of the study is that participants who learned and recalled words in the same location would be able to recall more words correctly than the participants who learned and recalled in different location.

Method

Method/design

The method used in this experiment was a lab experiment. The researcher chose this method as extraneous variables such as background noise could be controlled. Background noise can distract participants and restrict the number of words they are able to recall. The researcher controlled background noise by closing all windows and doors. The design used was independent groups.

Variables

All participants learned in the same location. The independent variable was the recall location. The dependent variable was number of words recalled.

Participants

The sampling method used was opportunity. A total of 14 individuals participated, three males and 11 females, who were all from Edinburgh, Scotland. The participants ages ranged from 17 to 65.

Materials

- Instruction sheet (Appendix 1)
- Consent form (Appendix 2)
- Debrief sheet (Appendix 3)
- Word list (Appendix 4)
- Pen
- Paper
- Timer

Procedure

Firstly, the researcher read out the instruction sheet. All participants began by signing the consent form after reading the information and debrief sheet. Next, half of the participants were placed together in the same room and shown a piece of paper, each with 15 short words on it. They were given one minute to memorise the words. After, the researcher handed out a piece of paper and a pen for the participants to write down as many of the words as they could recall. They were given one minute to do so. The researcher collected the pieces of paper, and the participants were asked to leave.

Then, the other half of the participants were placed in the same room and shown the list of words. They were also given one minute to memorise the words. However, they were then brought into a different room and given a piece of paper and a pen. It was here that they recalled the words. They were also given one minute to do so. Again, the researcher collected the pieces of paper, and the participants were asked to leave.

Ethics

One ethical guideline that was followed in this experiment was informed consent. Before the experiment began, participants filled out a consent and debrief form, within which they were informed of each task they had to complete. They were told they would be given one minute to memorise a list of words and one minute to recall them. Participants were then told if they were going to remain in the room they were in or be moved to a different one for the recall task.

Another ethical guideline that was followed was the right to withdraw. Participants were told that they were allowed to withdraw at any time during the experiment and also if they wanted to withdraw their results, they would be destroyed immediately; with no questions asked. Participants were able to leave the experiment if the time limit was making them feel stressed and could withdraw their data if they felt self-conscious by the results.

Another ethical guideline that was followed in this experiment was protection from harm. The researcher was firstly protected as the method of sampling ensured every participant was known to them, meaning they were not in danger when recruiting participants. Participants were protected from harm as they were given verbal reassurance that this experiment was not a test of their intelligence and that it is normal to forget words during an experiment like this. This helped to minimise any feelings of stress. They were also given the option of participating on their own if they were concerned their results would be compared by other participants. This ensured participants would not feel embarrassed.

One other ethical guideline that was followed was confidentiality. Any personal information e.g. name and date of birth was kept confidential on an iPad that required a password to open. Once results had been gathered, they were recorded on a notes page and the paper copies were destroyed to ensure no other individuals would see them. The notes app required a password to access in addition to the iPad password.

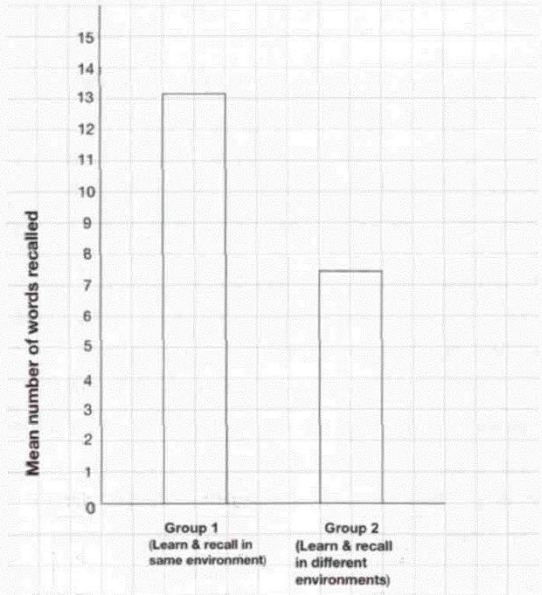
Results

Using mean as a calculation was useful for this data set as it uses every number in the data set and therefore is a fair representation of all the data. It shows an average number between the two groups in regard to how many words were remembered, depending on recall location. This is a useful method of analysing data as it shows how the whole data set performed. This was used instead of standard deviation, for example, which is more challenging to calculate, meaning more chance of error, and does not provide a full range of the data set.

Table1: Number of words recalled depending on recall location

Group	Mean recall score (number of words)
1: Learn/recall in same environment group	13.1
2: Learn/recall in different environments group	7.6

Graph 1: Number of words recalled depending on recall location



The hypothesis of this study was that more words from the list would be recalled if participants remained in the same room as they learned the words, and fewer for participants who learned and recalled in different rooms. The results from Table 1 and Graph 1 support the hypothesis as more words were recalled by those who remained in the same room than those who moved rooms.

Discussion

Analysis

The results are supportive of the hypothesis in the fact that the results show a link between changing location and recall of words. It is shown that the participants who were in the group where a change in location was present, recall of words was poorer than those who remained in their original location. These results can be compared to the Godden and Baddeley (1975) study of divers and word recall. Divers who learned and recalled the words in the same environment (e.g. divers who learned and recalled underwater) were able to recall more words from the list. Whereas, for example, divers who learned those same words underwater but recalled on land performed poorer in the task and remembered fewer words. This therefore links to the results found by the researcher and also provides evidence in regard to how memory can be affected by surrounding environments.

These results can be linked to the concept of cue-dependent forgetting. When information is initially transferred into LTM cues are stored too and when these cues are triggered again (by being in the same location as when initial information was stored), information that has been forgotten can be retrieved again. This concept was found in the results as by learning the words in one room and recalling them in that room, there may have been cues stored by participants, allowing them to recall more words. Whereas participants who changed locations did not have cues that would have had the potential to increase their recall score.

The results may have been impacted by memory loss conditions that were unaccounted for. This is a variable that could not be controlled; however, it may have influenced results, reducing the maximum number of words recalled by a participant, and average number of words recalled by the group.

Another variable that was not controlled was demand characteristics. Five out of the 14 participants study psychology which may have influenced their behaviour. By studying psychology, this meant that these participants could appropriately guess the hypothesis of the experiment and therefore what results would be needed in order to prove this

hypothesis. This had the potential to impact the results as participants may have altered their performance in the task and may not have acted as naturally as they would in an everyday situation.

A conclusion that can be drawn from these results is that we are more likely to remember information if we remain and/or return to the same location as when this information was first learned. This is shown, as the average number of words recalled by the group in this situation was 13.1 compared to an average of 7.6 words recalled by the group changing environments. Chances of recalling certain information from a past situation will be increased by being in that same environment; we may remember something that we would have otherwise forgotten.

There are various aspects of real life that these results can be applied to. For example, contextual cues are often used in police work in order to recreate the environment from an incident. Witnesses/victims may be asked to describe the environment they were in, for example what the weather was like and what colours they could see. This is done in hopes of any forgotten information being recalled again.

Another application of these results is that when revising for an exam, we should not restrict revision to one location. As information/memories may be associated with only one situation and therefore ability to recall will decrease.

Evaluation

One strength of this study was that the researcher used opportunity sampling to enlist participants. This is a strength as this sampling method is convenient which was suitable for the researcher who is a working student, this method also ensures participants could be recruited efficiently.

Another strength of this study is that both groups performed the recall task early in the day. By performing the task at the beginning of the day, maximum alertness can be ensured meaning participants have an increased chance of remembering more words than if completing the task at night, for example.

One weakness of this study is that the sample consisted of 11 females and only three males. This is a weakness as generalisability of results to the male population is limited. Between males and females there are differences in brain functions and therefore differences in memory which is not shown in the results.

Another weakness of this study is that by using a lab experiment method there is low ecological validity. Memorising and recalling a list of words is not a task that is often

experienced in everyday life. Results therefore are not fully accurate as participants may have not acted naturally.

References

Leckie (2019) N5 & Higher Psychology Student Book. Bishopbriggs, Glasgow: Leckie

Simply Psychology (2023) Context and State-Dependent Memory. Available at: https://www.simplypsychology.org/context-and-state-dependent-memory.html (accessed March 2025)

Tutor2U (2021) Retrieval Failure due to Absence of Cues. Available at: https://www.tutor2u.net/psychology/reference/retrieval-failure-due-to-absence-of-cues (accessed March 2025)

Appendices

Appendix 1 – Information Sheet

Information sheet

The aim of this experiment is to investigate the effect an environment has on our recall.

This experiment will ask you to memorise words from a list of 15. You will then be asked to recall those words in the room you memorised them in or you will be taken to a different room to recall. You will be given one minute to memorise the words and one minute to recall them. The researcher will then collect your answers.

Appendix 2 – Consent Form

Consent form

This psychology study will involve memorising words from a list in one room and recalling them in that same room or a different one.

To take part in this study you must be over the age of 16.

Any and all data collected will be kept anonymous and private. If at any time you wish to withdraw from the experiment, you are free to do so. Any questions can be asked by contacting the Higher Psychology Department.

Please fill in the below:

Signature:

Date:

Date of birth:

Appendix 3 – Debrief Sheet

Debrief sheet

Thank you for taking part in this study.

The aim of this study is to investigate the effect an environment has on memory recall. Data will be gathered and averaged from a memory recall task. Participants will all learn words in one room and then recall in the same or a different room. Withdrawal during or after the experiment is respected. Personal details and results will be kept confidential to ensure privacy. Any questions and or for more information, contact the Higher Psychology Department.

Thank you again for participating in this experiment.

Appendix 4 – Word List

List of words to recall

House

Brown

Coat

Game

Ring

Sound

Hook

Chair

Spider

Apple

Rocket

Light

Heart

Key

Frame

Appendix 5 – Raw Data

Learn/recall in same environment group.

Participant 1 – 14 words

Participant 2 – 15 words

Participant 3 – 13 words

Participant 4 – 12 words

Participant 5 – 13 words

Participant 6 – 12 words

Participant 7 – 13 words

Learn/recall in different environments group.

Participant 8 – 7 words

Participant 9 – 8 words

Participant 10 – 8 words

Participant 11 – 7 words

Participant 12 – 7 words

Participant 13 – 8 words

Participant 14 – 8 words

Appendix 6 – Raw Calculations

Learn/recall in different environments group average word recall.

7+8+8+7+7+8+8 =53/7=7.6 words

Learn/recall in same environment group average word recall.

14+15+13+12+13+12+13=92/7=13.1 words