

Interference and remembering words in short term memory



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The study of memory is based on cognitive psychology, which is basically a branch of psychology that studies mental processes including how people think, perceive, remember and learn. Studies by Godden and Baddeley aimed to test out whether we need cues to help us recall information and could support the idea that we do lose some information in the short-term memory. In their experiment they used total number of 18 participants including 13 male and 5 female from a diving club where they were asked to recall 36 different and unrelated words. They were then split into 4 different conditions as shown below:

Encoding condition

Retrieval condition

dry

wet

wet

dry

wet

wet

In which the “ dry – dry” means, encoding or learning the words on dry land and retrieval or recalling the words on dry land, “ wet – dry” is encoding under water and retrieval on dry land and vice-versa.

Afterwards the results showed recall was higher on those within same cues at encoding and retrieval (dry – dry and wet – wet). Due to this, it was concluded that participants with mismatched cues at encoding and retrieval are more likely to forget words listed.

Another study of displacement by Glanzer and Cunitz (1966) which aimed to test out whether short-term memory has a limited capacity could be used to highlight this study. A total number of 46 participants (men) were shown words projected on a screen every 3 seconds. After all 15 words were shown to the men; the experimenters asked them to recall as many words as possible. Then the men (participants) were asked to count for 10 seconds and afterwards were asked for the second time to recall as many words as possible. The men were again asked to count for 30 seconds, and then allowed for the third time to recall as many words as possible. Afterwards the result clearly shows that the participants' long-term memory was not affected as they were able to recall the first words from the list, while on the other hand differences occurred when recalling the words at the end of the list. Therefore it was concluded that the results clearly supported the idea of short-term memory having limited capacity.

Both studies above clearly show some evidence that the short-term memory has limited capacity; however my study aimed to repeat that of Glanzer and Cunitz (1966) study into displacement

HYPOTHESIS

Participants will recall more words after uninterrupted rehearsal than after interference of the words with some sort of distraction during rehearsal.

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This is a one tailed hypothesis as previous studies justify the prediction (study of displacement by Glanzer and Cunitz 1966). There is evidence that shows that participants' level of recall will drop as interference continues.

THE METHOD

Design

A Laboratory experiment was conducted in a setting where the researchers could manipulate the independent variable. In addition the researchers were able to control the situation and observe how people react to the manipulations. Our choice of laboratory experiment is basically the most appropriate experiment for our studies.

Variables

The independent variable is whether the participants' short-term memory will be interrupted with levels of distractions or not interrupted at all.

The dependent variable is how many words participants will recall after interference and this is operationalised by counting the number of words they will recall in each condition.

Material (apparatus)

We used list of 24 unrelated words (see appendix 1) as our material for research and the reason for choosing unrelated words is basically to make our findings or dependent variable valid and reliable. We also used ' number count' to interrupt the list of words participants have in their short-term memory. A timer was used in order to control the length of time participants were allowed to recall words.

Participants

A total number of 24 participants were used in the study including 10 males and 14 females. Participants included both students and relatives. An opportunity sample was used for this study, whereby family and friends were asked if they could voluntarily participate in the study. Colleagues that I am jointly working with also used the technique of asking teachers if they could conduct a study in their lesson using students available as participants.

Ethics

Verbal consent was obtained from all participants used for this research where by similar hard-copies were given to each participant to read what the research was about and what was expected from them (see appendix 2).

As a group we tried as much as we could to be aware of the ethical issues surrounding this study and tried to adhere to the main British Psychological Society ethical guidelines. Even though we obtained consent from our participants we also made it clear that they had the right to withdraw from the study at anytime. Moreover, we fully explained to the participants the details of the study as well as the research whilst respecting and maintaining confidentiality issues.

Procedure

We approached and gained verbal consent from our participants in college while some group members used family and friends as I did. After I gained their consent, a brief was read to them (see appendix 2).

The actual experiment took place in a living area of a friend's house. Before I started the procedure with the participants, I read to them our standardized instructions (see appendix 2).

I started the procedure by reading out to them word list 1, gave them 60 seconds to recall as many words as possible. Subsequently I read out to them word list 2, asked them to count backwards from 100 for about 30 seconds, and thereafter asked them to recall again. At the end I collected the results.

Finally, I debriefed all participants by explaining to them the details of the experiment, what I would be using their data for and what I would be hoping to achieve (see appendix 2). Afterwards, participants were offered the opportunity to ask any question related to the study. Before I completed the whole experiment I once again thanked all participants for their time.

THE RESULTS

Table of our raw scores is in appendix (see appendix 3)

The raw data and graph of our result (see appendix 3 and 4) clearly show the level of recall in condition 1 is higher than the level of recall in condition 2 but the difference was surprisingly not to a great extent.

With these findings I fully support and agree with my hypothesis (Participants will recall more words after uninterrupted rehearsal than after interference of the words with some sort of distraction during rehearsal). The reason for this decision is mainly based on the result we got from the studies.

SUMMARY TABLE (The average scores of recall)**Conditions****Mean****Median****Mode**

Condition1 (no interference)

8.7

17

17

Condition 2 (interference)

7.5

15

14

The above summary table of our average result clearly shows the difference or the impact interference can have on ones memory. This goes back into depicting and repeating Glanzer and Cunitz (1966) study into displacement. The table also shows in all three averages the level of recall is higher in condition 1 where there is no interference compare to condition 2 where there is interference. A clear graph of the average results below;

THE DISCUSSION

We found that when participants' short term memory was not interrupted, they were able to recall more words than when they were interrupted. As a result of this I continue to accept my hypothesis.

Considering what was discussed earlier in my introduction about the study conducted by Godden and Baddeley which showed that we need cues to help us recall information, our studies showed something different as one needs attention and no interference to recall information. Godden and Baddeley made further observation that recalling within same cues at encoding and retrieval (dry - dry and wet - wet) will be higher and recalling with mismatch cues (dry - wet and wet - dry) at encoding and retrieval are more likely to forget. In comparison to our findings, despite having different aims, there is evidence of displacement within some specific conditions in our studies (no interference and interference) and evidence of displacement in different conditions in Godden and Baddeley studies (same cues and mismatch cues). The relationship between these two studies is limited.

The study that has similarities with our study is the study of displacement by Glanzer and Cunitz (1966) which I have also mentioned earlier in my introduction. Our study appears to repeat that of Glanzer and Cunitz (1966) study of displacement. It also supports the findings of Glanzer and Cunitz (1966) study. The reason why I think both studies had similar findings is because we used the same method of interruption used by these psychologists on our participants while conducting our studies.

Evaluation

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One of the strengths of our study is based on our method of research which is laboratory experiment; this has allowed us to control many variables, in which we were able to manipulate the independent variable. However some may argue it lacks ecological validity because it does not represent real life situation (whether peoples' memory can be affected by some kind of interruption in a natural setting).

We were also able to operationalise our dependent variable by using the accurate measurement (counting the number of recall made by each participant in every condition). Despite being able to control variables, there were extraneous variables like whether some participants may have had alcohol, medication or even anxiety that could have had an influence or effect on their memory before the experiment.

For the results of this study to be reliable and then generalized, the whole study will have to yield similar results when repeated. Having said that, this study can be improved by using more representative sample.

Through out the experiment, we made sure participants were comfortable with what they were doing; debrief them after the experiment whilst respecting their confidentiality.

Majority of the Participants we used for our study were college students where they had the highest level of recall in both conditions. However this could be argued by others as to whether these participants' memories were fresh and the fact that they were students could be one of the reasons why they were able to recall much of the words. Unlike the participants used

within family and friends, here the number of recall dropped compare to the students' (college participants) results.

Due to this reason, I was unable to conclude the results achieved here can be generalized to the wider community as peoples' memory status may be different depending on their situation at the time of the experiment.

BIBLIOGRAGHY

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APPENDIX ONE (1)

Word list one (1)

Chair

Bread

Lorry

Lion

Windows

Basket

Shoes

Flower

Play

Apple

Pencil

Carpet

Word list two (2)

Table

Butter

Tree

Plane

Coat

Book

Door

Girl

Sky

Paper

Boat

Scarf

APPENDIX TWO (2)

INSTRUCTIONS

I am doing research as part of my psychology coursework, will you please take part?

You are free to stop doing this experiment at any time. I will give each of you a piece of paper with a list of words on it and a piece of writing paper and a pen. It is not a spelling experiment it doesn't matter how you spell the words as long as you know what it says.

You have 45 seconds to read this list. When I ask you, stop reading please. Pause for 45 seconds. Please stop reading and place your list face down on the floor, now you can write as many words from the list you can remember.

I will give you a second list to read, again for 45 seconds. When I ask you, please stop reading. Pause for 45 seconds. Please stop reading and place your list face down on the floor as before, this time I would like you to count backwards from 100 out loud. Pause for 30 seconds for counting.

Now write down as many words from the list that you can remember.

Thank you for taking part; this was a brief experiment on short-term Memory and our ability to recall. If you would like a copy of the results please let me have your contact details and I will let you know when they are complete.

This experiment remains confidential and no one is being identified as a person in anyway. Thank you once again for corporation.