An Experiment investigating the Primacy and Recency effect on the recall of a list of words.

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Introduction

Our ability to remember is influenced by numerous factors. However how well we remember depends on the nature of the material we are learning and how we process this information. A lot of research was devoted into the properties of sensory buffer, short-term memory and long term memory. These 3 parts make up the multi -store model, these stages are all different from one another in terms of how much information we are able to store in. Furthermore they also differ from one another due to how information is forgotten.

Psychologists Atkinson and Shiffrin introduced the multi -store model in 1968. In addition the model has also been supported by Clive Wearing.

However in 1972, Craik and Lockhart introduced the levels of processing to criticise the multi-store model. The main difference between the two is that the levels of processing concentrates on the process of memory involved whereas the multi -store model concentrates on the stores and structures it includes LTM and STM.

The levels of processing has 3 dif ferent parts which build up the theory, these are: Phonemic processing, Structural processing and Semantic processing. The Structural processing is the appearance of the information that has been processed in our memory. Phonemic processing is the way we e ncode the sound of the information. In addition to this the Semantic processing is the meaning and the knowledge we have about the information which we process.

~~Craik and Lockhart (1975)~~

The aim of this investigation was to see how shallow and deep proces sing affects the way memory recalls.

The procedure of this investigation was that participants were given series of 60 words where they had to answer one of three questions. Some questions required the participants to process the word in a deep way (e.g. semantic) and others in a shallow way (e.g. structural and phonemic).

For example: Structural/visual processing: 'Is the word in capital letters or in small letters?' Phonemic/auditory processing: 'Does the word rhyme with …?' Semantic processing: 'Does the word go in sentence …?'

Participants were then given a long list of about 180 words into which the original words had been mixed. They were asked to pick out the original words. The results of this experiment were that participants recalled more words t hat were semantically processed compared to phonemically and visually processed words. Finally to conclude semantically processed words involve elaboration rehearsal and deep

processing which results to more accurate recall. Phonemic and visually processed words involve shallow processing and less accurate recall.

After hard research on this information based on memory, it motivated me into looking further into the investigation of memory, where I applied my own experiment on memory.

My aim was to see whether participants tend to recall the words at the beginning of a list and at the end of the list more than the middle words.

H1: The number of words recalled correctly will be significantly higher for the words from the beginning of the list and the end of the list than for the ones in the middle.

H0: The number of words recalled correctly will be the same for the words from the beginning of the list and the end of the list than for the ones in the middle.

Method

Design

Repeated measures is the experimental design I have chosen. I have chosen repeated measures instead of independent measures as independent measures means that participants only had to do one condition; it would mean that I would have only received one set of results. This would make it difficult to conclude whether or not the position of the words on the list would have an effect on how well they are remembered. However with repeated measures, I was able to obtain two sets of results, which helped me conclude to my experiment.

However during my experiment I had to be aware of the ethical issues. Such as confidentiality, when collecting the results from the participants I was aware of keeping their name confidential and I promised my participants t hat it will remain confidential I asked them not to write their names on the answer sheet i n addition I gave my participants the right to withdraw from the experiment in the debrief (see Appendix 1). I briefed my participants at the end of the experiment and I debriefed my participants at the beginning of the experiment.

My Dependent variable is the number of words correctly recalled (0 -20).

The Independent variable is the position of the words on the list (beginning -end middle).

The extraneous variable is the amount of nois e in the area where the experiment is taking place which can influence the participants recall also the amount of time could have influenced the results as participants may not have had enough time to recall and could have been put under pressure in finish ing the recall in time.

In order to be sure that the IV was the cause of the number of words correctly recalled, controlling the extraneous variable, background noise was crucial. The amount of background research there is, leads to difficulties in conce ntration from the participants where they are unable to hear the words read out. Although the experiment took place in the corridors of Westminster Academy at lunch time this meant that most students were either having lunch or were outside. Of course any other students present near where the experiment was taking place were asked to keep quiet.

Participants

My target population for my experiment was 16-18 year olds. My experiment involved 10 sixth formers who attend Westminster Academy. The sampling method I used was opportunity sampling. This was the best choice for my experiment as all participants were available at the time and willing to participate.

Materials

For my experiment I used a list of twenty unassociated words (see appendix 3). All of the words included were familiar with the participants. A brief, debrief and answer sheet (see appendix 1, 2 and 5).

Procedure

The experiment was carried out at different times. It once took place at the lunch time corridor and once took place in a break o ut area on the second floor of Westminster Academy. The participants were firstly informed they were going to take part in a memory experiment and were debriefed with an explanation of the experiment. They were then asked to listen to a list of 20 words a nd after would have a minute to recall as many words remembered. The participants were reminded that this experiment was not aimed at testing their intellectual ability and were also told not to communicate with other participants whilst doing the experim ent. The words were then read out with a 3 second gap between each word. After the list of words was read out, the participants were asked to recall as many words remembered within a minute. The sheets were then collected in and participants were given a full debrief about the study and my investigation (see appendix 3).

Results

The results showed that people remembered the first and last positioned words more than the middle positioned words. In total 81 words were recalled correctly in the first and last positioned words whereas the middle positioned words was only recalled 27 times. The Mean was 8.1 for first and last words and 3 for middle words. The mode was 6.5 for the first and last words and 4 for the middle words and also the rang e for the first and last words was 6 and for the middle words it was 4. My results supported my experimental hypothesis.

	First + Last Positioned Words	Middle Positioned Words
Mean	8.1	3
Mode	6.5	4

The mean of words recalled correclty in the first and last positioned words and the middle positioned words.
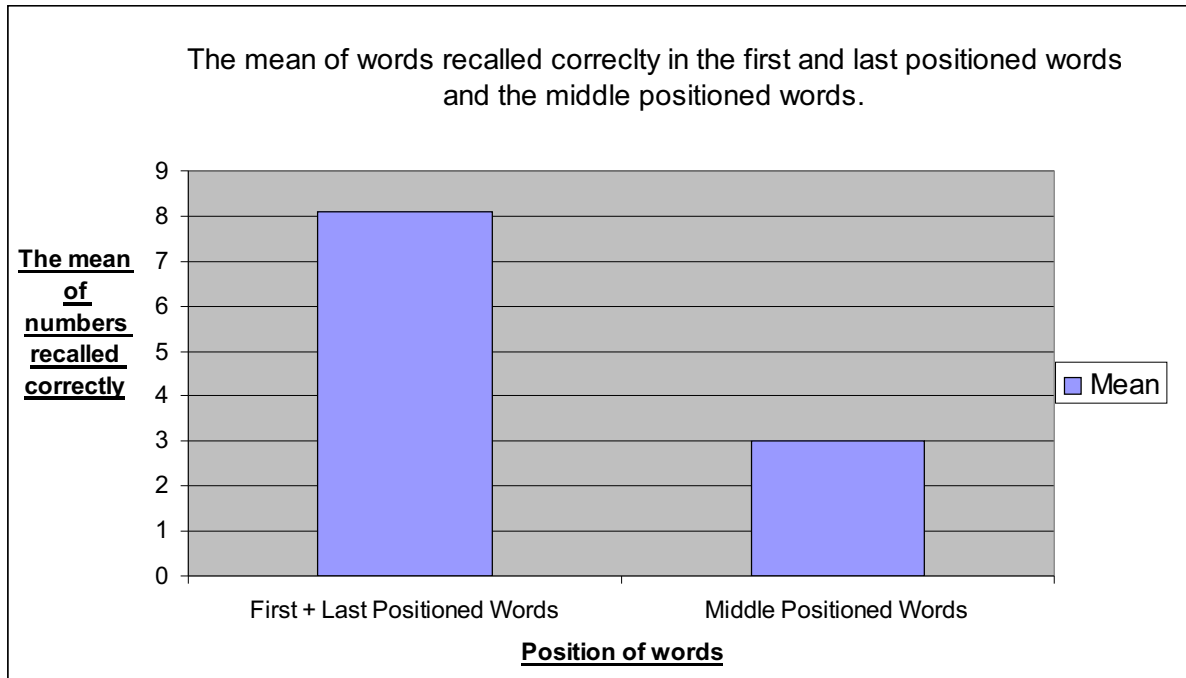
I used a graph because it shows the difference clearly and it is easier to read. It also shows the position of the words and the number of words recalled correctly clearer.

Discussion

The aim of my experiment was to see whether participants tend to recall the words at the beginning of a list and at the end of the list more than the middle words. My aim was achieved as the results showed that the words are recalled better from the beginning and end of the list than from the beginning.   (See appendix 4).

The results of the study supported the experimental hypotheses, which said that more words would be remembered from the first and last five words in a list than the ten middle positioned words. All participants recalled more words from condition one than condition two. The highest score for the first and last positioned words was 10 and the lowest score for the middle positioned words was a 0 and 1 this may have been because of bad memory, lack of concentration or that the participant was tired from just having a lesson.

My findings can be used in everyda y society to help deepen and support how the understanding of the primary and recency effect on memory in schools and colleges even higher education or jobs. However, they cannot be generalised to all

people in our society as the experiment was carried out on 16-18 year old students. The results could have concluded to a different result of the experiment was preformed on all ages. For an example I predict that if I had done this experiment on teachers they might have remembered the middle positioned words than the first and last positioned words. If however, the experiment was done on much older people then the results would differ as older people might have bad memory. This is because psychologists have found that in their research, as you get older your ability to remember increases until you reach an elderly age where it starts to deteriorate. I still believe my results can not be generalised decisions as the sample used was a small one based one age group with a certain type of participants at a certain time and also at one school only.

The investigation did however have some faults and could have been improved in quite a few areas. Such as my experiment was carried out at lunch time in a corridor where even though my intentions where to try prevent noisy backgrounds however this was not achieved for the second part of the experiment. This may have had an effect on how the participants recalled the list of words. I am aware of this as many psychologists have quoted that background noise has the ability t o influence how the participants recall these words therefore in the future I will be more aware an do the experiment in a isolated area or classroom.

Another experiment which I can carry out in is field making the participants read aloud the list of words instead of hearing the words. Yet the IV and DV will still stay the same as the existing ones. Overall I think if the experiment was done in an isolated area then this would have helped participants with concentration and then would lead to participants achieving a higher score on both first and last positioned words and possibly middle positioned words.

Conclusion

In my investigation the results clearly showed a difference in the amount of words correctly recalled from the first and last five words c ondition than the middle ten words condition. This is due to the primary and recency effect where the first information you receive you rehearse it and then it is sent to the long term memory (FIFO- first in first out). Furthermore to this the last inform ation you receive is placed in the short term memory. Whereas the information in the middle that has been processed in to our memory has not been rehearsed and therefore it could not have been sent to the long term memory and therefore it has been displace d. Furthermore it could not remain in the short term memory because of the last information received which has replaced the information from the middle. The

results clearly supported the experimental hypotheses of this study which states that the number of words recalled from the first and last five words would be higher than the recall of the middle words.

Appendix 1

Debrief

Hello my name is Ljaureta. The experiment I am conducting is based on memory. My aim is to see if the position of the word will impact on how you remember them. Your task is to recall as many words you remember in 1 minute, I will read out a list of 20 words and you are required to write down as many words remembered as possible in any order within a minute. I'd like to i nform you that you have the right to withdraw (drop out) at any time during the experiment. I'd also like to let you know that it is normal for you not remember all 20 words so don't stress about it.

Appendix 2

Brief

My aim was to see whether the order of the positioned word will affect the way you remember them, as you properly figured out the first and last words are easier than the middle positioned words. Your name will remain confidential (anonymous) and if you feel uncomfortable with handing in your answers then you can withdraw so don't feel pressured. And also if you want to know your results don't hesitate to come and find me.

Appendix 3

Word list:

1. TV
2. Sky
3. Box
4. Shoe
5. Eye
6. Cat
7. Hospital
8. Knowledge
9. Experiment
10. Procedure
11. Psychology
12. Guidance
13. Criteria
14. Bag
15. Door
16. Paper
17. Tree
18. Form
19. Clock
20. Paper

Appendix 4

Participants	First and Last Positioned Words	Middle Positioned Words
Participant 1	7	2
Participant 2	7	5
Participant 3	7	0
Participant 4	9	4
Participant 5	10	1
Participant 6	6	2
Participant 7	7	3
Participant 8	6	5
Participant 9	6	2
Participant 10	8	3
Total	7+7+7+9+12+6+7+6+6+8 = 81	2+5+0+4+1+2+3+5+2+3 = 27
Mean:	81 / 10 = 8.1	27 / 9 = 3
Mode:	7 + 6 / 2 = 6.5	3 + 5 / 2 = 4
Range:	12 – 6 = 6	5 – 1 = 4