

Cognition is the
activity of internal
mental processing



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Cognition is the activity of internal mental processing. This has been the focus of many psychologists in their studies. It involves the way human minds think, recall and perceive information. Cognitive psychologists the empirical studies below, discuss the evolution of chunking. Chunking theory, is a technique, which improves performance of recalling. If this technique actively practised or rehearsed, it will help improve retention for the subject. This is achieved by an increase in the knowledge about patterns concerning the task. These patterns are called chunks. Chunking was first proposed as a model of human memory by a Harvard psychologist called George A. Miller in (1956). Miller's main hypotheses were 'how many digits people could be remember a few minutes after having been told them'. The answer to this hypothesis was: " The Magical Number Seven, Plus or Minus Two". This meant that a person's short-term memory (which is equivalent to working memory) could hold from five to nine units of information. Miller in 1956, quoted the following statement to support his claims:" A human requires and organises knowledge of the environment by forming and storing expressions, called chunks. Which are structured collections of the chunks existing at the time of learning" G. A Miller (1956) the Psychological Review

Chunking theory has a key assumption that each chunk, which is encoded in the brain, is broken into subparts and processed into meaningful units at the same time. This type of learning involves the use of short term and semantic memory. This is the learner is actively processing information. Since the 1960's, cognitive psychologists such as Newell, Shaw and Simon, 1955-60, have drawn comparisons between computers and human thought as both processes involve manipulating information. Sperling (1960) produced a study into the capacity of short-term memory. Sperlings asked the question <https://assignbuster.com/cognition-is-the-activity-of-internal-mental-processing/>

if people could visually see more than they could remember. Sperling used 5 participants (which were students) to conduct the experiment. Participants were shown a list of five items consisting of letters and numbers. Each item was formatted in the same font and font size but in different tones. For 50 milliseconds. The stimulus material (the five items mixed with numbers) was deliberately chosen to prevent participants interpreting the letters as words. Sperling concluded that information is initially held in the sensory store (as did Atkinson and Shiffrin (1968)). Sperling suggested that the sensory store has a greater capacity than that for short-term memory, but the information decays very rapidly and is forgotten. The experiment was performed in laboratory conditions. Hence the experimental conditions indicate that the experiment permits replication because of the high controls. Therefore and has good control of extraneous variables. The results of the experiment reported that participants typically recalled the letters until the number is present in the material. This study justifies that the learner during performance creates chunks and that it improves recall. Simon (1974) conducted a further experiment into chunking theory. Simon established that there is a limit on effect in terms of the size of the chunk. He concluded that there is a shorter memory span for greater chunks. Bower and Springston (1970) concluded that meaningful chunks such as (FBI) are recalled better than chunks that show no meaning such as (TZP). In order for a chunk to determine meaningfulness, the participant relies on long-term memory. The capacity of long term memory is unlimited. The idea of phonetic sounds is important. Chase and Simon (1973) adapted Miller's theory of chunking and performed a further study in relation to the game of chess. They proved that exceptional chess player would break down each movement into chunks, <https://assignbuster.com/cognition-is-the-activity-of-internal-mental-processing/>

which improves their performance. RationaleThe empirical study outlined in the background research provides a basis for the investigation. Chase and Simon (1973) findings can be linked to the investigation of the effect chunking in terms of recall. Chase and Simon (1973) found that exceptional players of chess chunked the game into a series of strategies, which improved their performance. In relation to my experiment these findings can be of use as the learner will develop strategies to chunk the second list of letters, which consists of vowels, and consonants (which incorporate a phonetic sound that enables the letters to be chunked). These phonetic sounds will enable the learner to incorporate the letters into meaningful units, which would improve the performance giving better recall. In comparison to the first list which consists of pure consonants which cannot be chunkedI would expect the results of a participant based on Millers (1956). " The Magical Number Seven, Plus or minus two" for the participant to hold from five to nine units of information. When using the technique of chunking in the second list. AimsTo investigate whether chunking a group of phonetically sounded syllables into meaningful units will effect short-term recall. HypothesisA list of consonants with alternate vowels forming phonetically sounded syllables, can be recalled better than a list of letters consonants. The null hypothesisThere will be no variance between the recall phonetically and non-phonetically sounded groups of letters. Method ; DesignTo test the hypothesis, an experimental method shall be used so all conditions for the experiment can be applied to different participants to make the findings more ecologically valid. While the experiment is being conducted, repeated measures will be implied. This method has been chosen so the same participant can do all parts of the study. The advantage of <https://assignbuster.com/cognition-is-the-activity-of-internal-mental-processing/>

conducting the experiment this way is that we will need fewer participants. Also the same participant's will undergo the same conditions therefore there will mean fewer problems with individual differences. There are two conditions all participants will go through. The first condition is asking participants to recall the first test consisting of sixteen consonants. The second condition is to ask the participants to recall the sixteen letters consisting of consonants with alternating vowels. The task will take place in laboratory conditions. Therefore the conditions of the experiment can be controlled such as the temperature of the room. As the experiment is well controlled, it can be repeated, and similar results can be found. The disadvantage of laboratory settings is that it lacks realism. Therefore the experiment is ecologically invalid. The experiment will be divided into two tests. The first test will consist of a list of random consonants as shown below: TEST 1 N H P Z C T M Q W V L B T Z P X The second test will consist of random consonants alternate vowels. This will in theory enable the participant to chunk the letters into small groups of words with phonetic sounds. According to the hypothesis, this should make the test easier to process and therefore higher recall. The test is shown below: TEST 2 M E R A L I S O R E N U R L U K Both written horizontally in bold "New Roman Style" font at size 30. This was done to make the formatting clearer, hence easier to read. Each participant will be given the same test for the same duration of 20 seconds to look at the stimulus material and have a duration of 16 seconds to write their recall of letters down. The diagram below shows an example of the answer sheet, which is given to all participants before the experiment is conducted. The results are to be written by the participants so they list the recalled letters wherever it to be allocated.

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Name (m/f)The experimental conditions need to be reliable and easily replicated for further studies. The experiment is going to be set in a classroom where the environment can be controlled. For a replicable experiment, a good control of variables is needed. The experiment will be designed in a way so that the participants will find it easy to carry out the experiment. This will allow the experiment to be carried out more effectively. There will be twenty participants conducting the experiments, in the same ratio for each gender. This will make the test fair and better to analyse. The test will be conducted similarly, that of other cognitive psychologists such as Sperling in 1960. This is because the designs are similar for both experiments. VariablesThe dependent variable is the variable we are measuring. It is the numerical amount of how many letters each participant can remember. The independent variable is whether a list of letters can be categorised into (chunks) meaningful units using the technique of chunking. By grouping phonetically sounded syllables (consonants and vowels list) into chunks and recalling. ParticipantsThe participants will be of equal ratios in terms of gender, The number of participants used will be twenty (ten male) (ten female). This will make the test fair and better to analyse. They will all be within a twelve-month age band as they are in the same year eleven group. The targeted population is of 15-16 year olds. The type of sampling used in the experiment is Opportunity sampling. This method was chosen because it's quick and more ethical. Also the year eleven group were the only participants available. In order to make my experiment ethically correct I will follow the guidelines enlisted below. 1) Each participant will be told the objectives of the investigation at the same time and be informed any procedures which can

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influence their decision. 2) All participants will be debriefed at the same time before and after the experiment is conducted. Also have consent of the participants. 3) There will be no deception in the experiment, as all information will be informed to the participants. 4) When analysing the results no names will be given in order to prevent experimental bias and follow the ethical guideline of confidentiality. I will follow the 1990 Ethical Principles for conducting Research with Human Participants. ApparatusThe following apparatus will be used in the experiment: 1. An overhead projector will be used to display three acetate sheets. Making the test fairer in terms of the time limit on looking at the stimuli. The first sheet, the title of the experiment will be written. Prior testing will be done to see whether the information can be viewed clearly and precisely. 2. Stop watch to time how long participants can write and look at the stimulus material (i. e. the letters)3. Pencil for the participants. 4. Paper for the participants with pre-printed allocated boxes for the letters for each test. Procedure1. Debrief the experiment to the participants. Consent must be given from all participants before the experiment begins in order to make it ethically correct. 2. Set up the Overhead projector. 3. Ensure all participants are seated appropriately. 4. Switch the overhead projector on, placing the first acetate " psychology experiment" in place, making sure everyone has view, and switch off. 5. Pass out the papers with printed boxes for each letter. 6. Provide all participants with writing material. 7. Place test 1 with only the consonants on the overhead for 20 seconds8. Allow 16 seconds for participants to write. Repeat the same procedure for the second test. 9. When the test is finished, ask the participants to briefly write behind their answer slip which memory technique they used. 10. Collect the slips. 11. Before dismissing the participants, <https://assignbuster.com/cognition-is-the-activity-of-internal-mental-processing/>

explain the reasons (i. e. to find out if the technique of chunking works) for the experiment to follow ethical guidelines. ControlsThe experiment will be set in laboratory conditions this is an ideal form for the experiment as there is good control of the extraneous variables. The extraneous variable is important as it can influence the dependent variable. This variable is a matter, which is unintentionally likely to influence the experiment, by the participant. Examples of extraneous variables are emotions and stress, as the timings of the tests are close to exam times, it is important to note that these extraneous variables are likely to exist.