

# Memory test outcomes



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Many researchers have tried to unravel the mystery of memory in the brain. Early popular theorist Atkinson and Shiffrin (1968) proposed that memories are kept in the brain in “ stores” or rather locations where the information is held. They suggest that new information detected from the environment enters to the sensory memory. If attention is paid, the information then flows to the short term memory (STM). Thereafter, information must be rehearsed in order to lock it into the long term memory (LTM). This multi store model is a classic model of memory.

In 1970's, memory researchers ( Craik, Lockhart, Tulving, Waltkins) introduced an alternative to multi store model. Level of Processing (LOP) proposed that information could be processed with different levels of depth. It suggests that memorization occurs through how deep information is processed. It states that there is no real distinction between STM and LTM in the process structure.

Craig and Lockhart (1972) describes the LOP in three stages. Shallowest level of processing was found to be the orthographic components where visual cues are used. Auditory cues are used in the phonological level and produce a medium result. The third stage of the process is the deepest level of processing. Here, at the semantic level, the focus will be on the meaning of the words. In a published paper, Craig and Lockhart (1972) found “ memory traces can be seen as records of analyses carried out for the purposes of perception and comprehension, and those deeper, more semantic, processing results in more durable traces” (Nyberg, 2002, p. 345).

It was also assumed that more rehearsals in the shallow level will actually produce worse memory than less rehearsal in using deep level of processing

(Francis, Neath, Vanhorn, 2008). Craig and Lockhart (1972) suggest that in studying the memory, an incidental learning method instead of intentional should be used to study the effects of a certain type of processing. The emphasis must be on processing instead of structure.

One of the best method to study the effect of the LOP on memory is to have participant complete a memory task after engaging them in the three levels of processing (Barton, 2010). Studies have shown that there are predictable effects on performance in recall tasks concerning depth of processing on memory (Boatright-Horowitz, Langley, & Gunnip, 2009, p331).

According to the test conducted by Wagner, Schacter, Rotte, Koutstaal, Maril, Dale (1998), memory recall was much higher for semantic tasks (85%) where as non semantic processing was much lower (47%) following a three level LOP task (Wagner, et al., 1998).

Although it seems that LOP task yield better results in memory recall tests, very few studies have been conducted to show clear differences in the level of processing between participants having known that a memory recall test is the test, than a naïve participant. Francis, Neath, Vanhorn (2008) suggest that non naïve participant who tries to learn the test may use a different type of processing.

In Summary, the following hypotheses are formulated:

H1: Deeper level of processing yield more accurate results than shallow processing in memory recall test

H2: Non naïve participants have better scores in memory recall test than naïve participant

H3: There is no significant interaction in the level of processing between naïve and non naïve participants.

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Participants: Twenty-four Psychology students undertaking module PSY 305 making up the non naïve participants. Twenty-four other counterparts (volunteer participant) of the psychology student who are not taking up module PSY 305 makes up the naïve group.

Design: A 2x2 mixed within participants design was adapted. The independent variables are Level of Processing (IV 1) and Naivety (IV 2). In IV 1, the levels within are Deep and Shallow, whereas, in IV 2, it is Naïve and non naïve. The dependent variable is the accuracy which is the proportion of correct responses.

Material: Coglab 2. 0 on a CD (Francis, Neath & Vanhorn, 2008) Level of Processing Test

Procedure: The test was done in two phases. Phase 1 consisted of 60 judgement tasks. Three type of judgement tasks were randomly mixed. First judgement was to decide correct pattern of consonants and vowels to a word. Second judgement was deciding if two words rhyme. Third judgement task was to decide if the words appeared are synonyms. Participants were to press the / key for ' yes'(agree) answers and the z key for ' not'(disagree) answers for all the three judgement tasks. Participants moved to the next task by pressing the space bar.

Phase 2 of the test was the memory recall test. A 120 word series was shown, one after the other. At every interval participants were to decide if

the word appeared in phase 1. Only half of the words appeared were in phase 1. The operative key press is the same as phase 1.

At the end of the test, the raw scores on memory accuracy and the explanation of the test will be made available to the participant.