



## Levels of Processing

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The levels of processing effect was the creation of Robert S. Lockhart and Fergus I. M. Craik in 1972. The duo introduced this model as an alternative to prior memory theories (Atkinson & Shiffrin) which had divided memory into sensory, working and long-term stages.

Basically Craik & Lockhart believed that the depth of mental processing affected memory function. Memories that were deeply processed led to longer lasting memories while shallow processing led to memories that decayed easily.

Shallow processing occurs in four ways:

- **Structural:** Processing how an object or sound looks
- **Phonemic:** When we process how something sounds
- **Graphemic:** Processing letters contained in a word
- **Orthographic:** Processing the shape of something

Deep or semantic processing occurs in three ways:

- The process of relating an object/situation etc. to something else
- When the meaning of something is thought of
- When we process the importance of something

Simply put, the way we process information totally affects the extent that it is memorized according to the levels of processing model. Deep and semantic processing involves us thinking deeply about something which causes the memory of it to be easily accessed. Whereas shallow processing only thinks about the surface of something, meaning it soon decays and is forgotten.

There are three factors which determine if a memory remains:

- **Maintenance Rehearsal:** The process of repeating the information
- **Elaborative Rehearsal:** When the information is analyzed in a deeper way
- **Distinctiveness:** The ability to tell items apart

The levels of processing model suggests that the only one of the above factors which improves Long-Term Memory (LTM) is elaborative rehearsal.

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## Differences

There are a number of differences between this and the Atkinson-Shiffrin model. While the Atkinson-Shiffrin model <sup>[1]</sup> concentrated on long <sup>[2]</sup> and short-term memory <sup>[3]</sup> (STM), the levels of processing model focuses on the processes that make up memory and does not distinguish between LTM and STM. According to levels of processing, only elaborative rehearsal improves LTM while the Atkinson-Shiffrin model suggests that any form of rehearsal leads to an improvement in LTM. Unlike the Atkinson-Shiffrin model which structured LTM and STM, levels of processing has no set structure.

## Strengths

Craik & Lockhart's model has a number of strengths. It was the first theory to show that memory is actually improved when it undergoes deeper processing. This in turn explained why certain things are better remembered than others. It also proved that encoding is not a simple process.

Finally, brain imaging studies showed that higher levels of processing lead to greater activity levels in different parts of the brain which gives the theory some credence.

## Weaknesses

In terms of weaknesses, the theory is better described than explained. It seems to be a rather simple explanation for such a complex subject with the terms 'deep' and 'shallow' hardly an all-encompassing look into the theory of memory. The part of the theory which suggests that shallow processing equals a memory being quickly lost is not 100% accurate in all cases. Those with illnesses that affect memory cannot be included in the levels of processing theory.

Finally, this theory was espoused in 1972 but since then, various neuropsychological studies have suggested that there are specific systems of storage and structures contained in our memory.

**Links**

[1] <https://explorable.com/atkinson-shiffrin-model>

[2] <https://explorable.com/long-term-memory>

[3] <https://explorable.com/short-term-memory>