10. Imagery vs. interference

When I try to imagine the face of a well known person that I have seen in the media it may happen that another celebrity with a similar face is automatically retreived instead, and then it becomes harder to recall the face of the one that I was trying to recall. As an example I once tried to remember the name of Kevin Chappell, a PGA-player, but during this memory search I obviously had to imagine his face. But instead the face of the more famous Dustin Johnson, at the time no 1 in the world, appeared in my imagination, see pictures below.



Kevin Chappell

Dustin Johnson

Based on common anecdotes from students at my memory training courses this seems to be a common phenomenon. Clearly it is an example of how *interference* is a *strong negative* mnemonic factor, because the obvious structural similar features in my case of the above shown faces interfere with one another. However, it might also be an observation of the *strength of imagination*, because if one face is easy to imagine it will be much easier to recall than other faces.

In the case mentioned the knowledge of the resemblance between the two PGA-players may also influence the retrieval process, because Dustin Johnson, being number one on the FedEx Cup list at that time, is prominent in many respects. In march 2017 Dustin had just won two tournaments, and was interviewed on TV several times while Kevin Chappell was not seen on television, at least not by the author, who used to follow the PGA tour closely at that time. If one analyses these two faces they are actually not that similar if you look at eyebrows or width of chin, although their beards are similar.

However, one characteristic that stands out regarding the more prominent one is the often mentioned layed back or seemingly uninterested attitude of Dustin Johnson that is not seen in the movements of Kevin Chappell who generally appears more energetic. The latter may also laugh or smile more often during a tournament. In general theory of memory such properties are termed *attributes* and there has actually been a prominent elaborated memory theory called attribution theory that is often discussed in the academic press based on attributes (Murdock, 1974). Note that attributes may as well be termed aspects, categories or even dimensions.

Because such aspects of personalities as attitude involves *deeper* processing it would normally contribute to a quick and easy recall (Bower, 1974). Structural features of a face may then become less important and the more prominent person will occupy the current consciousness, or the so called scratch pad part of working memory as some theorists would call it (Baddeley, 1995).

When I designed the Male Faces face recognition test I discussed the considerations regarding deep vs. shallow processing with my supervisor, the late Stanislav Dornic. The decision was to design the test based on structular similarities among about 900 photos of police students. This decision process is described elsewhere (Fernaeus et al, 2000). In order to include such "deep" processing as attitude perception as an attribute in face recognition we would have been forced to design the test in a technically more advanced way, probably using some sort of video clips, not just photographs. However, this matter was discussed already in the chapter of the Spatial/static vs. dynamic dimension, but this issue is still not resolved.

Interference involves the following aspects:

- it interacts with time in several experiments
- STM experiments with memory load show direct effects of interference
- the effects of similarity by lures in recognition tests implies interference

Interference is on of the most studied phenomena related to memory. There is even an *interference theory* that had an impact on memory studies for decades. The interference dimension is often seen as the opposite to memory decay in explaining forgetting, where

decay was often seen as the immediate effect of time a such (Peterson & Peterson, 1959). Although interference is thus a negative factor for memory, it is included as one dimension, because the real opposite to interference is the ability to resist interference. As was mentioned in the introductory chapter this dimension would perhaps rather be labeled resistance to interference.

"Interference affects long term memory when two sets of information are confused. There are two main sorts of interference:

Proactive interference (pro=forward): earlier learning prevents recall of more recent information. When what we already know interferes with what we are currently learning – where old memories disrupt new memorie

Retroactive interference (retro=backward) is where new learning prevents or impairs recall of previously learned information. In other words, later learning interferes with earlier learning - where new memories disrupt old memories especially if items to be learned resembles the ones earlier learned.

Proactive and retroactive Interference are thus thought to be more likely to occur where the to be be memorized items are similar, for example: confusing old and new telephone numbers. Chandler (1989) stated that students who study similar subjects at the same time often experience interference. French and Spanish are similar types of material which makes interference more likely.

Postman (1960) provided evidence to support the interference theory of forgetting. A lab experiment was used, and participants were split into two groups. Both groups had to remember a list of paired words – e.g. cat - tree, jelly - moss, book - tractor. The experimental group also had to learn another list of words where the second paired word if different – e.g. cat – glass, jelly- time, book – revolver. The control group were not given the second list.

All participants were asked to recall the words on the first list. The recall of the control group was more accurate than that of the experimental group. This suggests that

learning items in the second list interfered with participants' ability to recall the list. This is an example of retroactive interference.

Although proactive and retroactive interference are reliable and robust effects, there are a number of problems with interference theory as an explanation of forgetting, especially if this factor would be the strongest candidate for impaired memory. First, interference theory tells us little about the cognitive processes involved in forgetting. Secondly, the majority of research into the role of interference in forgetting has been carried out in a laboratory using lists of words, a situation which is likely to occur fairly infrequently in everyday life (i.e. low ecological validity). As a result, it may not be possible to generalize from the findings.

Baddeley states that the tasks given to subjects are too close to each other and, in real life; these kinds of events are more spaced out. Nevertheless, recent research has attempted to address this by investigating 'real-life' events and has provided support for interference theory. However, there is no doubt that interference plays a role in forgetting, but how much forgetting can be attributed to interference remains unclear. Semantic memory more resistant to interference than other types of memory."