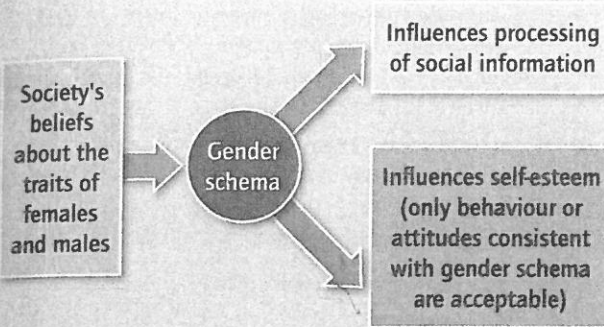


3.2

Evaluate schema theory

- A cognitive schema can be defined as a mental representation of knowledge stored in the brain. A schema can be seen as a network of knowledge, beliefs, and expectations about particular aspects of the world.

- Schema processing is to a large extent automatic, i.e. processed with little attention. It involves information from two sources: Input from the sensory system (bottom-up processes) and information stored in memory (top-down processes), which is used to interpret the incoming information (pattern recognition, interpretation).



Bartlett (1932) suggests that schemas are active recognition devices representing an effort after meaning. Schemas help people make sense of the world, make predictions about it and what to expect, and provide guidance on how to behave.

DiMaggio (1997) suggests that schemas are (1) representations of knowledge (e.g. stereotypes and social roles) and (2) mechanisms that simplify cognition in the form of "cognitive shortcuts". Schematic cognition is shaped and biased by culture (e.g. in culturally based stereotypes). Gender schemas are examples of cognitive schemas shaped by sociocultural ideas about what is appropriate for men and women (i.e. norms).

Darley and Gross (1983) carried out a laboratory experiment on schema processing in the social world.

- In this laboratory experiment, the participants saw two videos of a girl. In video 1 a girl was playing in a poor environment; in video 2 a girl was playing in a rich environment. Then they saw a video of the girl in what could be an intelligence test.
- When the participants were asked to judge the future of the girls they all said that the "rich" girl would do well and the "poor" girl would do less well.
- The study demonstrates that participants probably used pre-stored schemas of what it means to be poor and rich and interpreted the ambiguous information accordingly. Participants processed information based on a few salient details to form an overall impression that may not necessarily be correct.

Possible ways in which schemas affect memory

- People tend to remember the meaning (gist) of something, not the actual wording.
- People use stored knowledge to make sense of incoming information. If the information is unclear or incomplete, they fill in the blanks or interpret using their schemas. This is called "reconstructive memory" and results in distortion.
- People tend to ignore information that is not in line with their schemas (aschematic information). This may lead to bias in information processing (e.g. in stereotyping where people ignore information that is not in line with their schema).
- People tend to focus on information that is in line with their schemas (schematic information). This may result in "confirmation bias".

Bartlett (1932) "The War of the Ghosts"

Aim To investigate whether people's memory for a story is affected by previous knowledge (schemas) and the extent to which memory is reconstructive.

Procedure Bartlett asked British participants to hear a story and reproduce it after a short time and then repeatedly over a period of months or years (serial reproduction). The story was an unfamiliar Native American legend called "The War of the Ghosts".

Results The participants remembered the main idea of the story (the gist) but they changed unfamiliar elements to make sense of the story by using terms more familiar to their own cultural expectations. The story remained a coherent whole although it was changed. It became noticeably shorter for each reproduction. Bartlett concluded that remembering is an active process. Memories are not copies of experience but rather "reconstructions".

Evaluation

- The results of the study confirm schema theory (and reconstructive memory), but it was performed in a laboratory and can be criticized for lack of ecological validity.
- Participants did not receive standardized instructions and some of the memory distortions may be due to participants' guessing (demand characteristics).
- In spite of these methodological limitations, the study is one of the most important in the study of memory.

Bartlett, F (1932) *Remembering: A study in Experimental and Social Psychology*. Cambridge: Cambridge University Press.

3 Cognitive level of analysis

Brewer and Treyens (1981) Experiment on memory of objects in a room

Aim To investigate whether people's memory for objects in a room (an office) is influenced by existing schemas about what to expect in an office.

Procedure

- Participants were 30 university students, who arrived individually to the laboratory and were asked to wait in an office containing objects (e.g. desk, typewriter, coffee-pot, calendar). There were also other objects that did not conform to the office schema (a skull, a piece of bark, a pair of pliers).
- After waiting for some time, participants were taken out of the office and asked to write down everything they could remember from the room.

Results

- Most participants recalled the schematic objects (e.g. desk, typewriter).

- ① ■ Some participants reported things that would be expected in a typical office but were not present in this one (e.g. telephone, books).
- Many participants also recalled the skull (unexpected object). The very unusual object resulted in better recall than predicted by schema theory.

Evaluation

- The study confirms schema theory (and reconstructive memory), but it was a controlled laboratory experiment so there are issues of artificiality.
- The study used deception (participants were not told about the real purpose of the experiment) but they were debriefed afterwards and not harmed. The study could not have been made without deception so it was justified.
- There is sample bias. University students were used as participants so it may be difficult to generalize the results.

② Brewer, W.F. and Treyens, J.C. (1981) "Role of schemata in memory for places", *Cognitive Psychology*, 13, pp. 207-30.

Strengths of schema theory

- Schema theory has proven extremely useful in explaining many cognitive processes (e.g. perception, memory, and reasoning).
- Schema theory can be used to explain the reconstructive nature of memory, for example in eye witness testimony, stereotyping, gender identity (gender schema) and cultural differences (cultural schemas).

Limitations of schema theory

- Cohen (1993) argued that: the concept of schema is too vague to be useful and it is not clear how schemas are acquired in the first place.
- Schema theory may focus too much on the inaccuracies of memory but most of the time people remember accurately.