

## Mental Models and Communication

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SCOTLAND

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### Mental models



- Mental representation, image or schema
- Created in simplified form
- Part of our thinking process
- Influenced by stored memories
- Create expectations
- Retrieved then shaped during communication
- Influence how we attend, what we listen to, what questions we ask, how we phrase our statements

– (Fraik, 1943; Johnson-Laird, 1983)

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'she has an injury to her arm'



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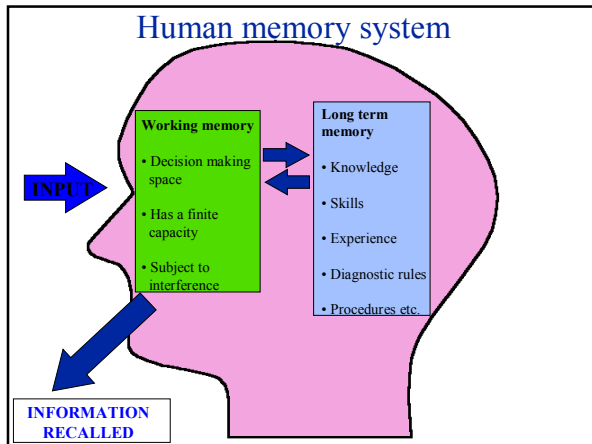
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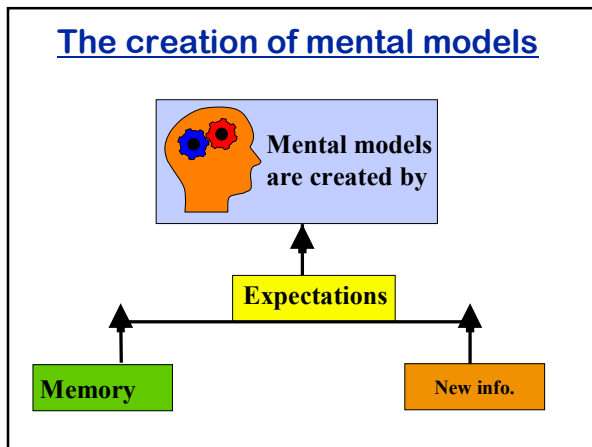
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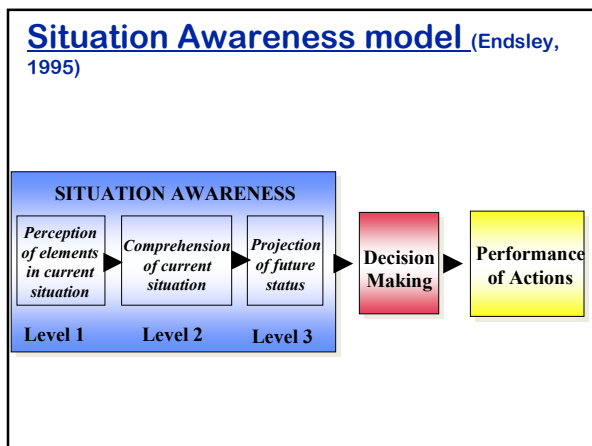
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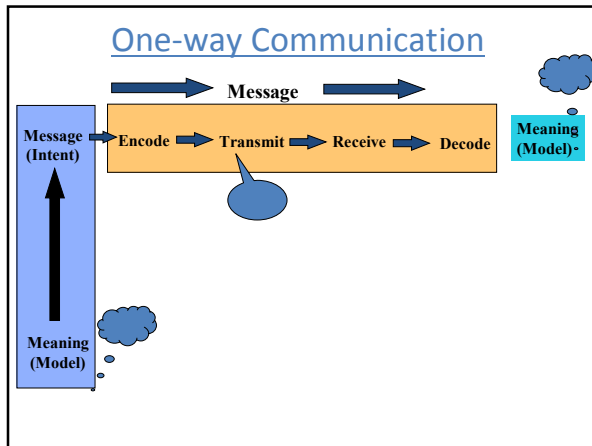
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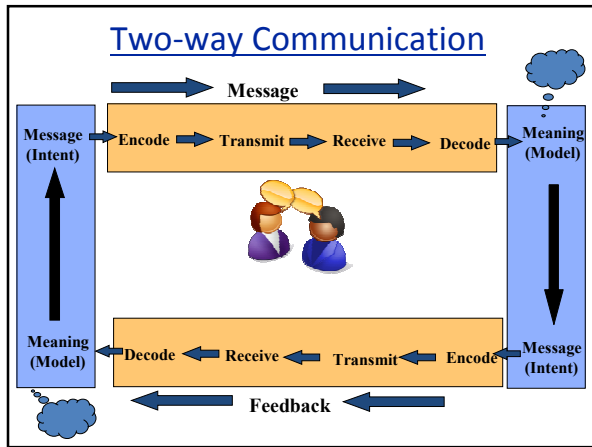
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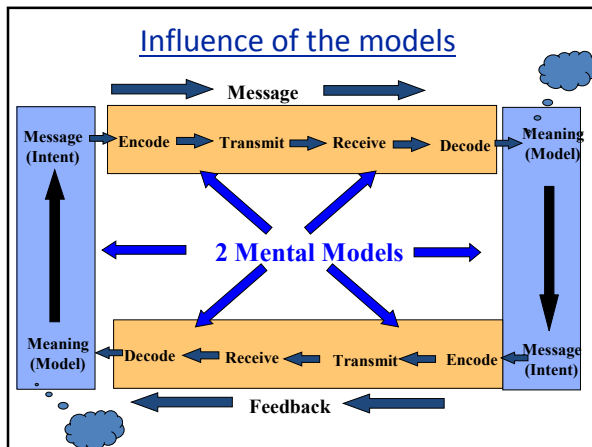
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Internal influences on communication

- Language differences
- Culture
- Motivation
- Expectations
- Past experience
- Prejudice
- Status
- Emotions/moods



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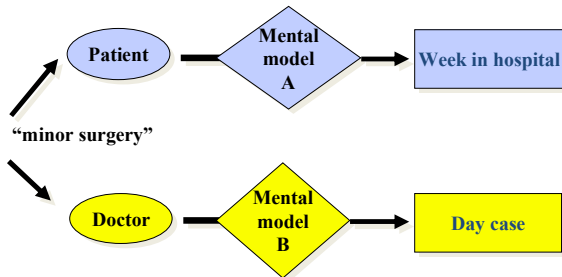
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Mental models influence interpretation



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Ambiguous quantifiers

- Slightly
- Quite
- Minor
- Not very
- Fairly
- Significantly
- Frequently

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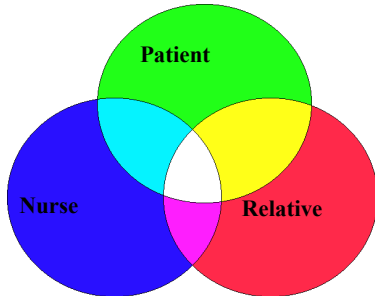
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**Shared Mental Model?**  
**Treatment plan**



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**Lack of a shared mental model**

- 'Are you on the call?' (teleconference)
- 'Bumping' accident in ICU (Richard Cook)
- Northwest's 'inaugural' flight to Brussels (1995). A DC10 flying from USA to Frankfurt, Germany routed to Brussels, Belgium by mistake.

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**Risks of confirmation bias**

• You have a model of what you expect to happen, and ignore or discount information that does not agree with your model.

*"meet at the entrance gate with the ticket booths"*

• You believe you have the correct model (understand correctly), so don't waste time (cognitive effort) listening to the rest of the message. *"yes, yes, I know what you mean"*

*You ask leading questions in an attempt to get the*

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### Signs of mismatching models

- Confusion - uncertain or puzzled (often accompanied by sense of/ signs of unease)
- Difficulty in comprehension (non-verbal signs)
- Requests for repetition, clarification
- Failure to resolve discrepancies - contradictory data, tiny clues don't match but are discounted
- Fixation – focussing on one thing to the exclusion of everything else
- A gut feeling that things are not quite right

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### Checking for a shared mental model

- Establish what the other person (e.g. the patient) already knows, is thinking.
- Use open rather than leading questions.  
– *'Which leg is it?' vs. 'It's your left leg, isn't it?'*
- Check your own comprehension  
– *'When you say, 'not much blood', how much?'*
- Ask for 'read back'  
– *'Tell me when you are going to take these pills'*

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### Firefighters' mental models (Lubnau)

- Am I aware of what is going on around me?
- Are things happening as they are supposed to be happening? If not, why not?
- If things should go wrong, what is the plan?
  
- Does the leader know all the answers to these questions?

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Cognitive interviewing (Fisher & Geiselman, 1985)

- Technique to extract complete and accurate information from eyewitnesses
- Let the witness tell their story, in whatever order they choose
- Be silent when they are thinking
- Don't interrupt
- Ask for story backwards
- Open questions before closed/ leading

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**The Industrial Psychology Research Centre**  
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Further information

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- [www.abdn.ac.uk/iprc](http://www.abdn.ac.uk/iprc)  
lists of projects and papers and reports

Scottish Patient Safety Research Network

- [www.spsrn.ac.uk](http://www.spsrn.ac.uk)

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