Welcome to

Training Module 5:
Memory

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Advantage: ???

Disadvantage: ???
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Advantage: Our brain is not overloaded with useless information. Mostly, irrelevant information is lost...*but*

Disadvantage: ???
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Example: approximately 40% of the details of a story we have heard half an hour ago cannot be actively recalled.

Advantage: Our brain is not overloaded with useless information. Mostly, irrelevant information is lost... *but*

Disadvantage: ... important information also vanishes (appointments, memories from holidays, knowledge acquired in school...)

Memory
What impairs memory?
What impairs memory?

- distraction while studying (e.g. radio, other persons in room, unpleasant atmosphere)
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- distraction while studying (e.g. radio, other persons in room, unpleasant atmosphere)
- stress & pressure
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- distraction while studying (e.g. radio, other persons in room, unpleasant atmosphere)
- stress & pressure
- excessive alcohol consumption!
What impairs memory?

- **distraction** while studying (e.g. radio, other persons in room, unpleasant atmosphere)
- stress & pressure
- excessive alcohol consumption!
- **distracting activities after studying** (e.g. watching TV)
How can I memorize things better?

The more senses involved during learning, the better recollection!
The American psychologist Elizabeth Loftus showed participants a series of photographs. One picture showed a red car standing in front of a yield sign ▼.
After the photos were presented, the experimenter tried to trick the memory of some participants with a misleading question.

*In that picture, was another car passing the red car while it stood in front of the *stop sign*? [in fact, the car stood in front of a *yield sign*!]*
Later two photographs were shown. The participants had to decide which photo was originally displayed. Do you think memory could be misled?

Did another car pass the red car while it stood in front of the stop sign?

Presented!

Misleading Question

Which picture was originally presented?

Time course
Our memory does not perfectly match reality!

1. Presented!

2. ...but what is remembered?

Without the misleading question, only 25% said they saw a stop-sign in the original picture.

...whereas 59% of the participants who received misleading information said they saw a stop-sign!
This investigation and many others show that human memory is good but not perfect.

We tend to rearrange or add things to our memories that have happened in the past or that we have heard of later.
Exercise

- You will be shown complex scenes.

Try to recall as many details as possible!
Exercise

- You will be shown complex scenes.

- Afterwards you will be asked to recall what you saw in the picture and how confident you are in your judgement.
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- Afterwards you will be asked to recall what you saw in the picture and how confident you are in your judgement.

Try to recall as many details as possible!
The blacksmith
What did you see? How confident are you?

- tongs
- window
- anvil
- leather gear
- spectators
- tools
- hammer
The blacksmith

- tongs
- window
- anvil
- leather gear
- spectators
- tools
- hammer

= not presented
Pirate ship
What did you see? How confident are you?

- sails
- pirates’ flag
- lookout on the mast
- anchor
- monkey
- ladder
- windows
Pirate ship

- sails
- pirates’ flag
- lookout on the mast
- anchor
- monkey
- ladder
- windows

= not presented
Not everything we recall has actually happened!

Our brain replaces and adds missing information from past and related events (e.g. typical beach scene from holidays). Some objects are added by "logic" (in the example: hammer, anchor)!

Real memories can often be differentiated from false memories by their vividness: false memories are rather "pale" and less detailed.
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Real memories can often be differentiated from false memories by their vividness: false memories are rather “pale” and less detailed.
Types of memory errors
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- Forgetting
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- Memory biases:
  - normal memory bias: positive events are better memorized than negative events
  - depressive memory bias: negative events are better memorized than positive events
Types of memory errors

- Forgetting

- Memory biases:
  - normal memory bias: positive events are better memorized than negative events
  - depressive memory bias: negative events are better memorized than positive events

- Illusions/false memories: remembering things that have not taken place!
“Play it again, Sam” – is a phrase Ingrid Bergman or Humphrey Bogart never said to Sam (Dooley Wilson), the nightclub pianist and reluctant performer of the sentimental song ‘As Time Goes By’ in *Casablanca* (1942). The closest Bogart came to the phrase was this: “You played it for her, you can play it for me...If she can stand it, I can. Play it!”
### False memories

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<td>By means of certain interrogation methods and suggestive remarks, false memories can be “created”. There are a number of court cases, in which innocent people confessed in court after they had been convinced during intensive interrogations of having committed a crime.</td>
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In an experiment, participants were shown manipulated photos, in which they were flying with their father in a hot air balloon. 50% of the participants later said that they recollected that episode from childhood, which in fact never took place.
Studies show that many people with psychosis [but not all!] are more confident in false memories than people without psychosis.
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At the same time the confidence for true memories (i.e. things that really happened) is decreased in psychosis.

This may lead to difficulties differentiating true from false memories and may obstruct a healthy, realistic view of the environment.
## How memory errors promote misinterpretations during psychosis - examples

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<th>Event</th>
<th>False memory</th>
<th>Actual situation</th>
</tr>
</thead>
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<tr>
<td>Argument with a friend.</td>
<td>He called you an “idiot.”</td>
<td>Your friend raised his voice. Certain expressions “were in the air”, but were never actually said.</td>
</tr>
<tr>
<td>You approach the nurse with a question.</td>
<td>She did not care and even laughed at you.</td>
<td>Yet, the nurse was understanding, unfortunately, she had no time - due to anger about other things, the situation was not properly recalled.</td>
</tr>
</tbody>
</table>
Again, you will be presented complex scenes.
Exercise

- Again, you will be presented complex scenes.
- Try to detect what has been left out (missing details are later shown in blue)
Bank robbers
What did you see in the picture?
How confident are you?

- opened safe
- blowtorch
- welding tank
- bills
- coins
- mask
- flashlight
Bank robbers

- opened safe
- blowtorch
- welding tank
- bills
- coins
- mask
- flashlight

= not presented
Classroom
What has not been presented?
How confident are you?

- sponge
- grey coat
- desk
- blackboard
- school bag
- chalk
- ponytail
- teacher’s chair
Classroom

- sponge
- grey coat
- desk
- blackboard
- school bag
- chalk
- ponytail
- teacher’s chair

= not presented
optional: Video clip presentations that address today's topic are available at the following website: http://www.uke.de/mct_videos

After the video, you may discuss how it is related to today's topic.

[for trainers: Some movie clips contain language that may not be appropriate for all audiences and across all cultures. Please carefully pre-screen videos before showing]
Beach

What didn’t you see? How confident are you?

- beach chair
- fishing rod
- Orca whale
- snorkel
- towel
- blue sky
- seagull
Beach

- beach chair
- fishing rod
- Orca whale
- snorkel
- towel
- blue sky
- seagull

= not presented
Brainstorming

What do you typically see in a shop?

- ...
- ...
- ...
- ...
- ...

Shop
What has been presented in the picture?
How confident are you?

- shop assistant
- waggon
- cash register
- counter
- cans
- cigar
- board with items
- window display
Shop

- shop assistant
- waggon
- cash register
- counter
- cans
- cigar
- board with items
- window display

= not presented
Brainstorming

What would you typically expect at a swimming pool?

- ...
- ...
- ...
- ...
- ...
Pool
What did you see in the picture? How confident are you?

- rubber duck
- towels
- cooler
- shower
- deck chair
- sunhat
- newspaper
Pool

- rubber duck
- towels
- cooler
- shower
- deck chair
- sunhat
- newspaper

= not presented
Bank
What didn’t you see? How confident are you?

- cameras
- cash machine
- security window
- safe
- till
- dog
- lockers
- cameras
- cash machine
- security window
- safe
- till
- dog
- lockers

= not presented
Camping
What didn’t you see? How confident are you?

- camper
- tent
- table cloth
- bikes
- chairs
- blue sky
Camping

- camper
- tent
- table cloth
- bikes
- chairs
- blue sky

= not presented
Brainstorming

What do you expect to see at the zoo?

- ...
- ...
- ...
- ...
- ...
- ...
What did you see in the picture?
How confident are you?

- giraffes
- fence around zoo
- elephant
- zookeeper
- peacock
- ticket desk
- lion
Zoo

- giraffes
- fence around zoo
- elephant
- zookeeper
- peacock
- ticket desk
- lion

= not presented
Brainstorming

What do you typically find in a living room?

- ...
- ...
- ...
- ...
- ...
Living room
What did you see in the picture?
How confident are you?

- table
- chairs
- table cloth
- clock
- cupboard
- flowers
- painting
Living room

- table
- chairs
- table cloth
- clock
- cupboard
- flowers
- painting

= not presented
Learning Objectives:

- Our memories can play tricks on us!
  Especially for important events (quarrel, eyewitness testimony etc.), keep in mind:
  If you *cannot* remember *vivid* details about an event:
- Don’t be too sure that your recollection is true.
Learning Objectives:

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  If you cannot remember vivid details about an event:
  - Don’t be too sure that your recollection is true.
  - Seek additional information (e.g. a witness).

Example: You had a quarrel with someone and vaguely remember that he/she made insulting remarks. Consider that your memory may have played tricks on you or that your recollection may be distorted. Also, ask people who were present on the occasion.
During psychosis people are prone to remember things that did not happen at all or happened in a different way.
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**Example:** Karla remembers being recruited for a terrorist-attack.

**Background:** A middle-eastern looking man boarded the bus and asked Karla whether the seat next to her was taken. She misinterpreted this as a code word for a recruitment attempt. This false interpretation was further embellished in her memory, for example that the man handed her an envelope and introduced himself as "Ali" (these details were not deliberately added).
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False memories are more likely to arise when one is afraid or under a lot of pressure. Before drawing consequential conclusions: Think carefully whether your assumptions are objective and well-founded! Also take into account: In comparison to real memories, false memories are often hazy!
Thank you for your attention!

For trainers: please hand out worksheets (www.uke.de/mct)
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<td>Paintings of Spanish landscape/Gemälde einer katalanischen Landschaft</td>
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<td>The Rocketeer</td>
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<td>Star trek/Raumschiff Enterprise</td>
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<td>Dresden bombing</td>
<td>CC</td>
<td>Bombed Dresden/Zerbombtes Dresden</td>
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<td>missha</td>
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<td>bugs bunny</td>
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<td>Norman Rockwell Edited by/Editiert v. Michael B. Miller</td>
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<td>Drawings/Zeichnungen: Robbery/Raub, Beach/Strand, Pool, Bank, Camping, Living room/Wohnzimmer</td>
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Do we all see and remember the same things?

Example: 3 painters draw the same Spanish village square...
Please look for differences in the three paintings relating, for example, to size and colors! What things have been portrayed differently or been omitted?
Everyone perceives things differently! Like in the three paintings: the same village square but with many variations!

**Andreas Weißgerber:** The village square is very colorful. The pink house to the right (see arrows) is purple in the painting of Mr. Hampel and red in that of Mr. Schack.

**Helmut Schack:** The painting has an earthy color. The palms are not as straight as in the other paintings.

**Bernd Hampel:** In this painting the objects are very close together. Unlike in the other two paintings, the wall to the left has three arches (see circles).
Our memory does not work like a camera! Recognize that you may be mistaken.

Photo of the original village square: Please note that the two cars weren't there when the paintings were made.

**Andreas Weißgerber:** The proportions are coherent, but the colors do not match (e.g., the stone walls are not in fact green).

**Helmut Schack:** The original palms are very straight.

**Bernd Hampel:** There are only two arches on the wall to the left (see red circle).
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