



Metacognitive Training (MCT)

MCT 5 B – Memory

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Memory

- Our capacity to memorize information is limited.



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- Advantage: ???
- Disadvantage: ???



Memory

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



Memory

- Our capacity to memorize information is limited.

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 ...)



What impairs memory?

???



What impairs memory?

- **distraction** while studying (e.g. radio, other persons in room, unpleasant atmosphere)



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- stress & pressure



What impairs memory?

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



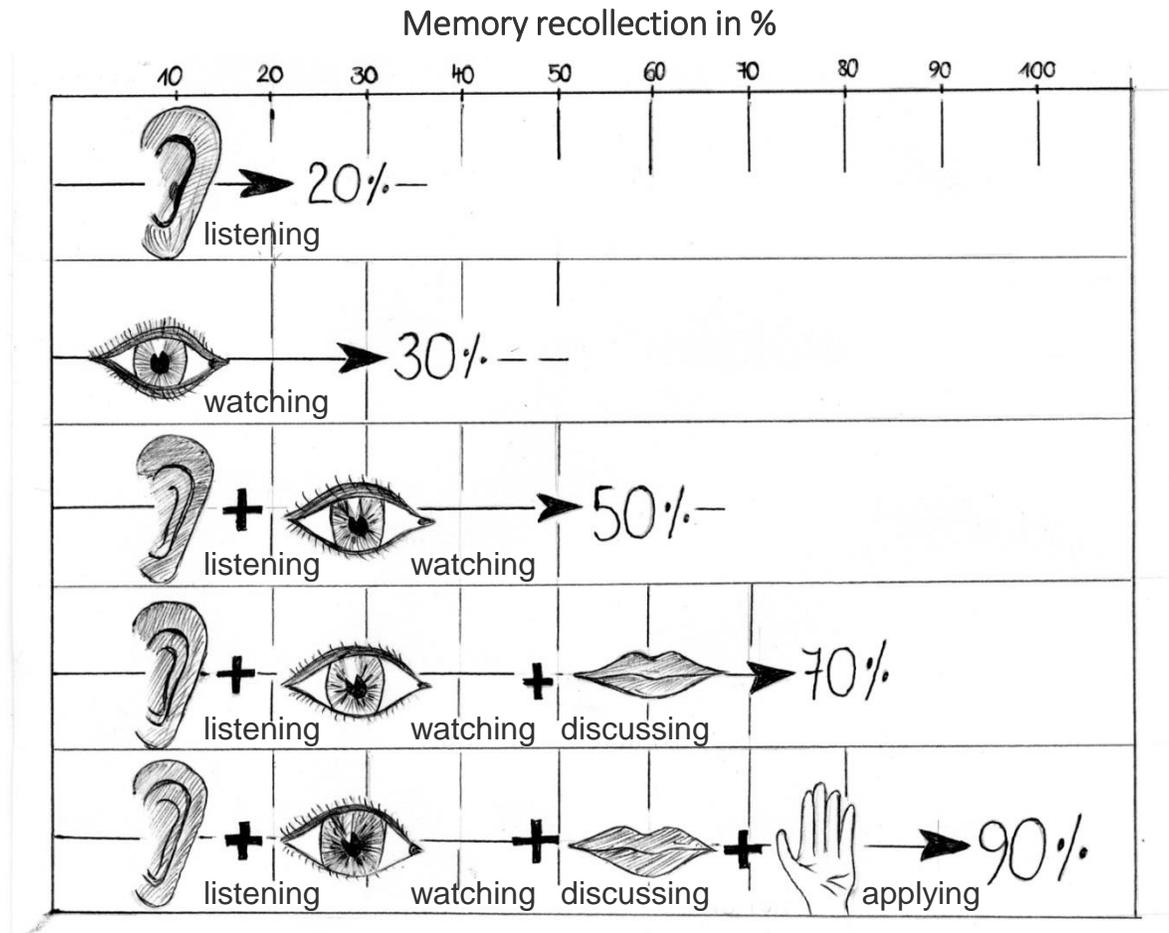
What impairs memory?

- 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!





Does our memory work like a video recorder? (for an alternative exercise see end of presentation)



The American psychologist Elizabeth Loftus showed participants a series of photographs. One picture showed a red car stopped in front of a yield sign  .



Does our memory work like a video recorder?

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 was stopped in front of the **stop sign?**”

(In fact, the car was stopped in front of a *give way sign!*)



Later, two photographs were shown. The participants had to decide which photo had originally been displayed. Do you think memory can be misled?

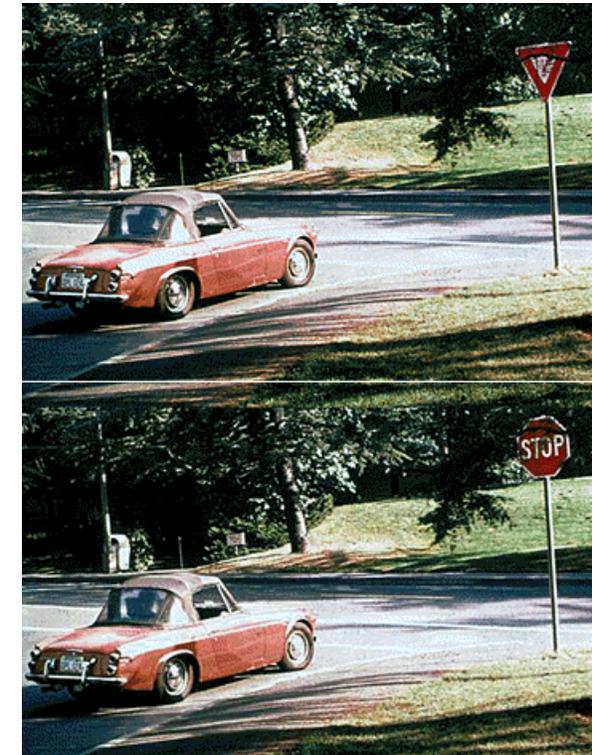
Presented!



Misleading Question

*Did another car pass the red car while it was stopped in front of the **stop sign**?*

Which picture was originally presented?



Time course



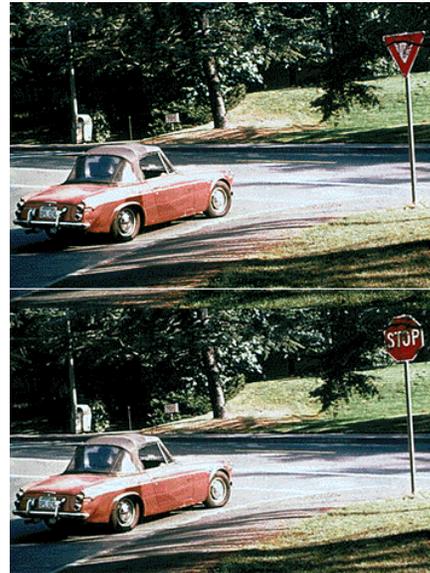


Our memory does not perfectly match reality!

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!



Our memory does not perfectly match reality!

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.



Exercise

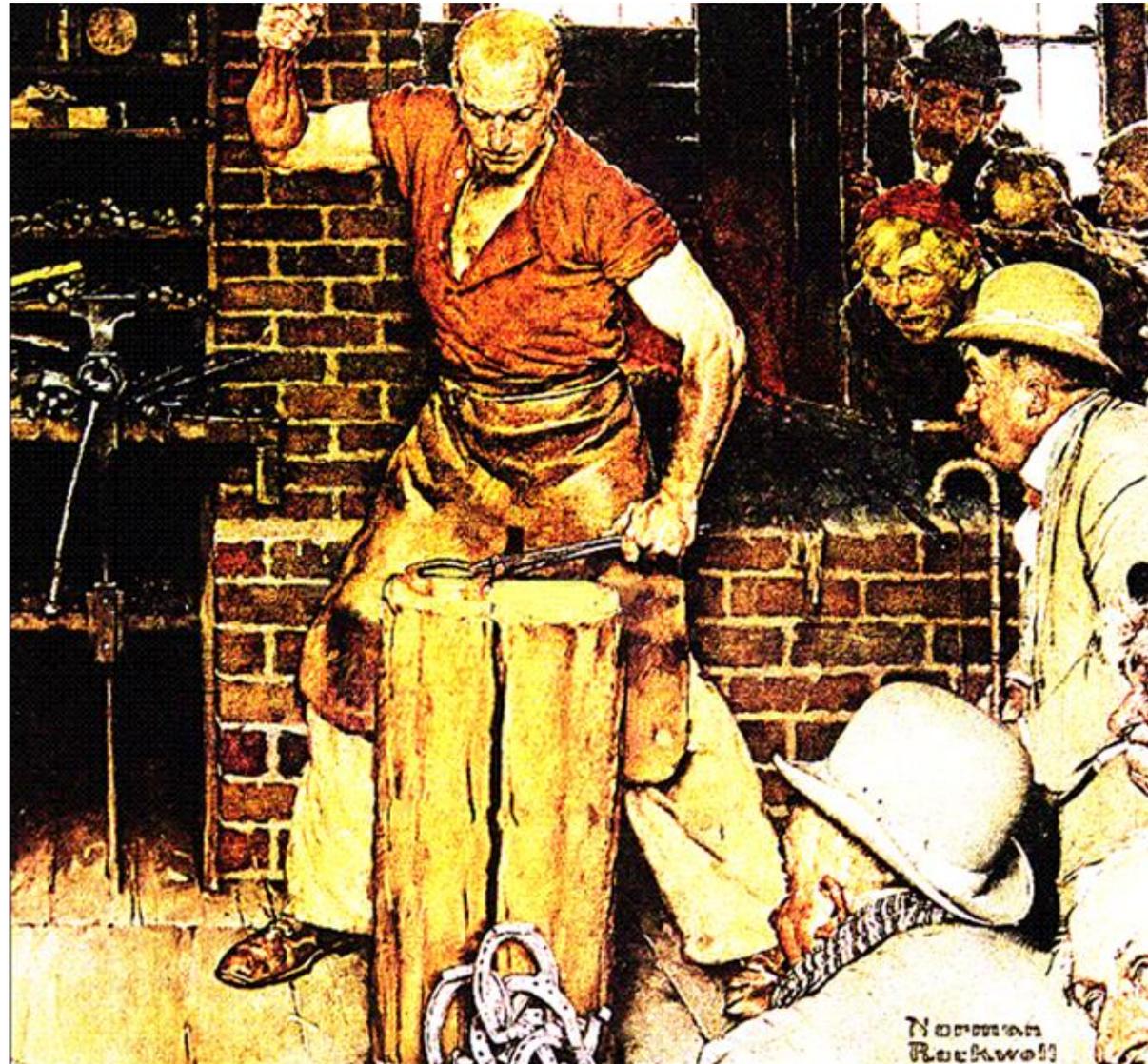
- You will be shown complex scenes.
- Afterwards, you will be asked to recall what you saw in the picture and how confident you are in your judgement.



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.

Try to recall as many details as possible!





The blacksmith

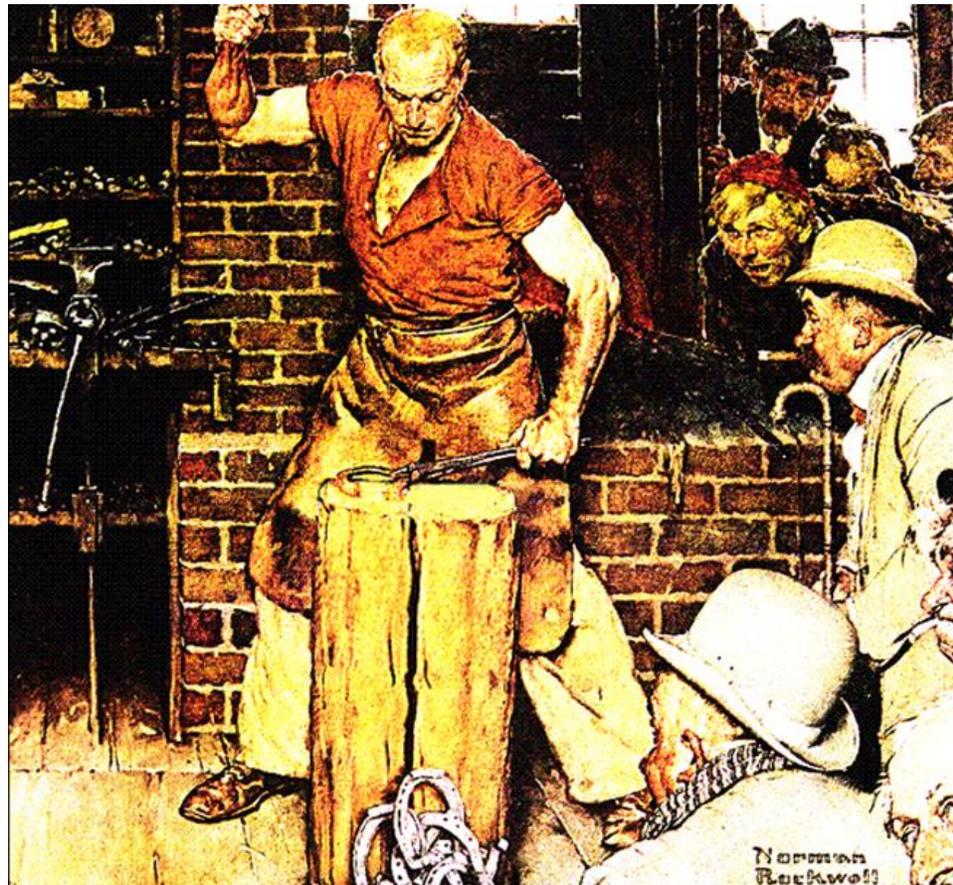
What did you see? How confident are you?

- 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
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False memories in everyday life

- Not everything we recall has actually happened!



False memories in everyday life

- 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)!



False memories in everyday life

- 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.



Types of memory errors

???



Types of memory errors

- Forgetting



Types of memory errors

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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!



False memories



“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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In the 1980 presidential campaign, Ronald Reagan recalled war memories that he apparently mixed up with scenes from the movie Wing and a Prayer.



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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.



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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.



Why are we doing this?

- 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.



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- Studies show that many people with psychosis (but not all!) are more confident in false memories than people without psychosis.
- 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

Event	False memory	Actual situation
Argument with a friend	He called you an “idiot.”	Your friend raised his voice. Certain expressions “were in the air”, but were never actually said.
You approach the nurse with a question	She did not care and even laughed at you.	Yet, the nurse was understanding, unfortunately, she had no time – due to anger about other things, the situation was not properly recalled.

Can anyone contribute a short personal experience?



Exercise

- Again, you will be presented complex scenes.



Exercise

- Again, you will be presented complex scenes.
- Try to detect what has been shown and what has been left out.





Bank robbers

What did you see? How confident are you?

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

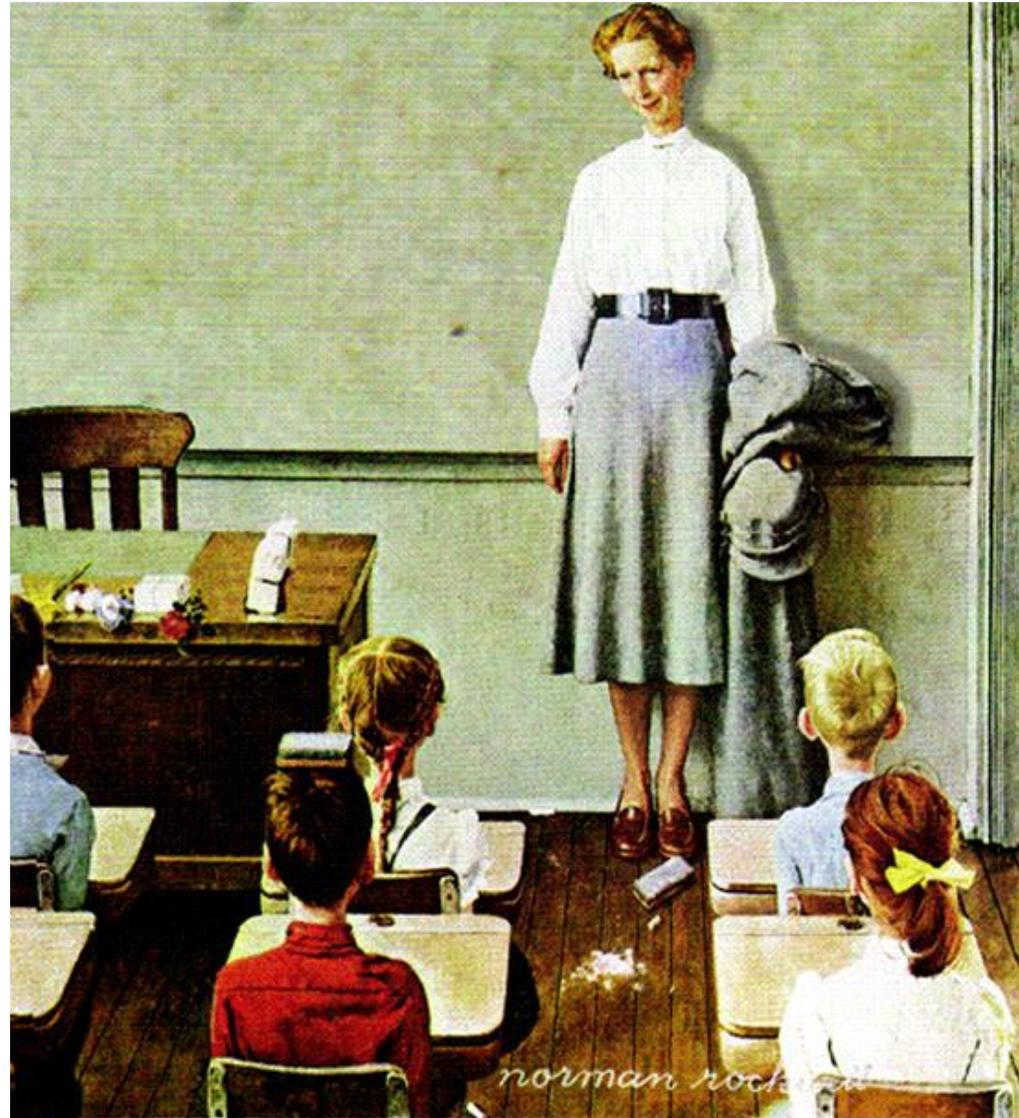


Bank robbers

- opened safe
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= not presented





Classroom

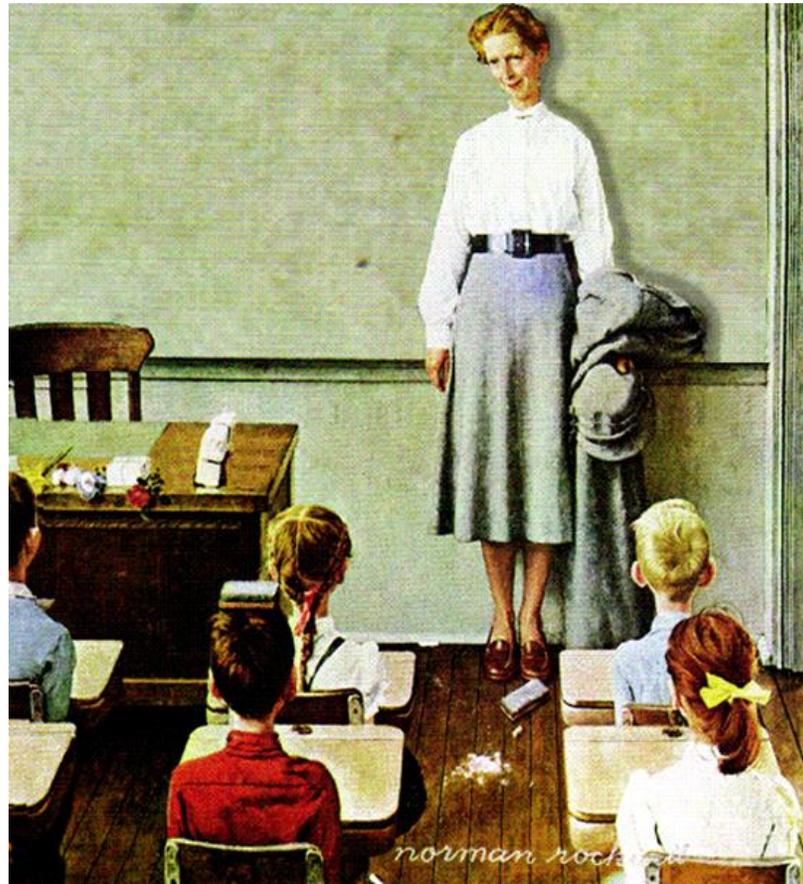
What did you see? How confident are you?

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



Classroom

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Optional: Videoclip

Video clip presentations that address today's topic are available at the following web site:

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 did you see? How confident are you?

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



Beach

- beach chair
- fishing rod
- Orca whale
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- towel
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Brainstorming

What do you typically see in a shop?

...

...

...

...



Shop

What did you see? How confident are you?

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



Shop

- shop assistant
- waggon
- cash register
- counter
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■ = not presented





Brainstorming

What would you typically expect at a swimming pool?

...

...

...

...



Pool

What did you see? How confident are you?

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

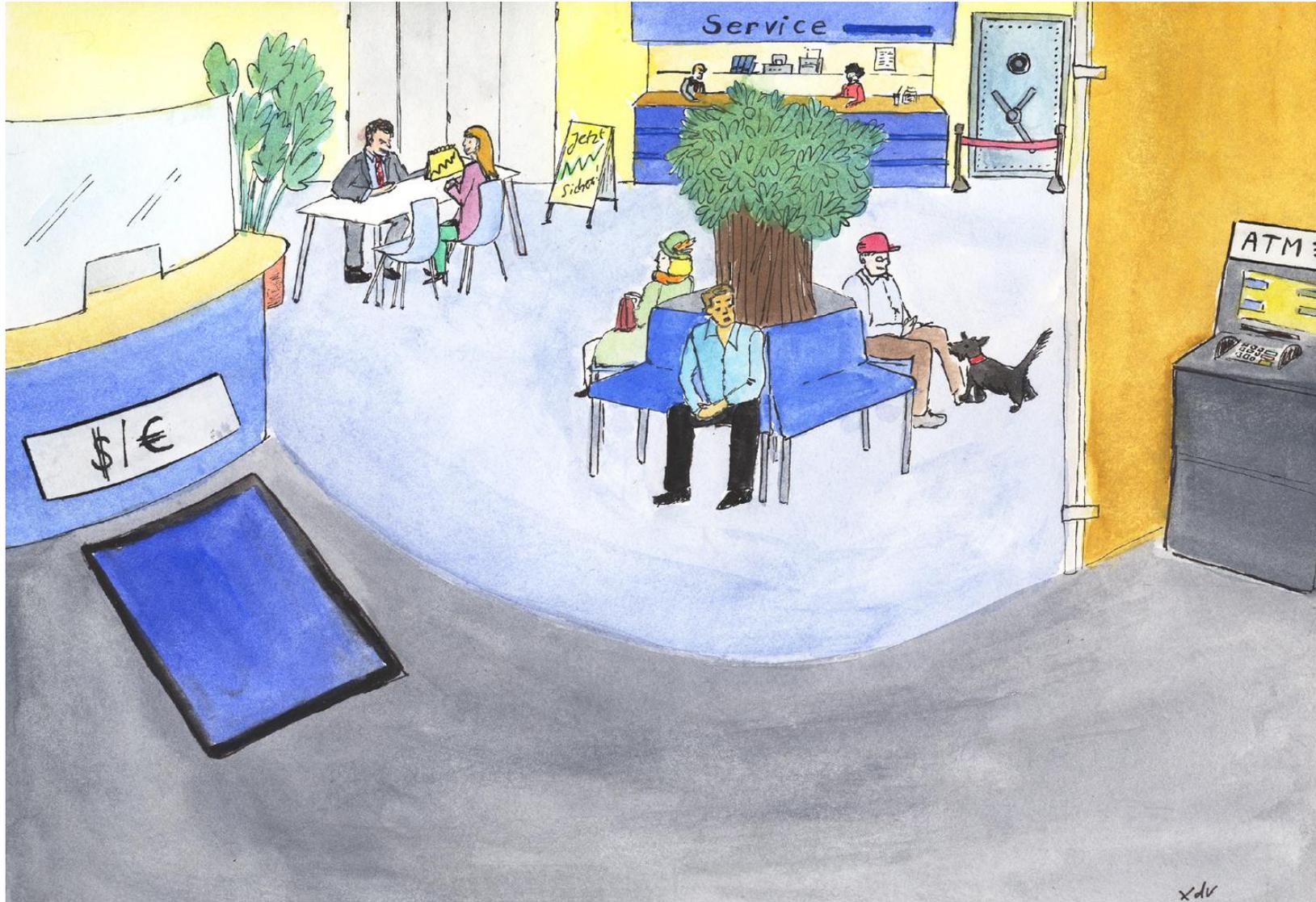


Pool

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



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Bank

What did you see? How confident are you?

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



Bank

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Camping

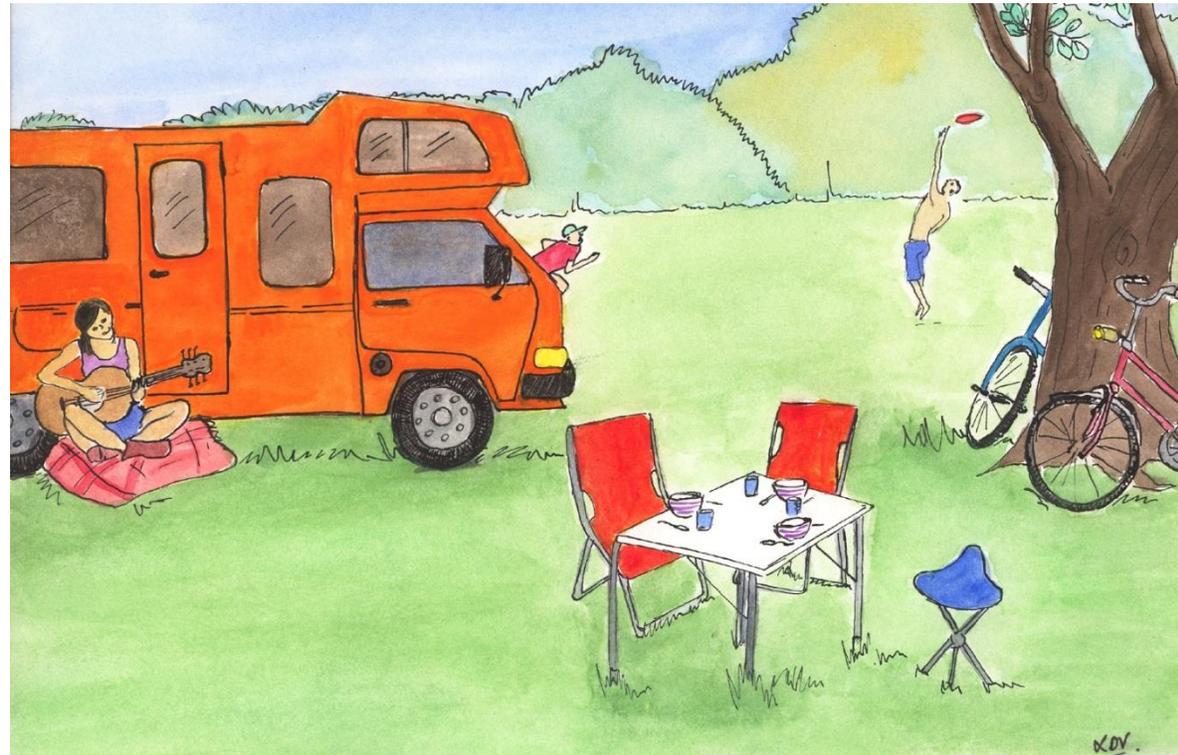
What did you see? How confident are you?

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



Camping

- camper
- tent
- table cloth
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Brainstorming

What do you expect to see at the zoo?

...

...

...

...



Zoo

What did you see? How confident are you?

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



Zoo

- giraffes
- fence around zoo
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- ticket desk
- lion







Brainstorming

What do you typically find in a living room?

...

...

...

...



Living room

What did you see? How confident are you?

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



Living room

- table
- chairs
- table cloth
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- cupboard
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■ = not presented



Transfer to everyday life

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.



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Example: You had a quarrel with someone and *vaguely* remember that he/she made insulting remarks to you.

Consider that your memory may have played tricks on you or that your recollection may be distorted. Also, ask people who were present at the occasion.



What does this have to do with psychosis?

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. Introduce our app COGITO (download free of charge).



www.uke.de/mct_app





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Bernd Hampel, Helmut Schack, Andreas Weißgerber	Private/privat	Untitled/ohne Titel	PP	Paintings of Spanish landscape/ Gemälde einer katalanischen Landschaft
The Rocketeer	flickr	Kirk Talks to Spock about his Fez Addiction	CC	Star trek/ Raumschiff Enterprise
lyricsart	flickr	Dresden bombing	CC	Bombed Dresden/ Zerbombtes Dresden
Nobik Attila	flickr	Piaget	CC	Piaget/ Piaget
missha	flickr	bugs bunny	CC	Bugs Bunny/ Bugs Bunny
Norman Rockwell Edited by/Editiert v. Michael B. Miller	---	---	PP	False memory pictures/False Memory Bilder
Geobra Brandstätter; Stefan Merz & Frank Burmeister	---	---	PP	playmobil figures/ Playmobilbilder
Ximena Del Villar Derpsch	Private/privat	---	PP	Drawings/Zeichnungen: Robbery/Raub, Beach/Strand, Pool, Bank, Camping, Living room/Wohnzimmer



Do we all see and remember the same things?



Example: 3 painters draw the same Spanish village square ...



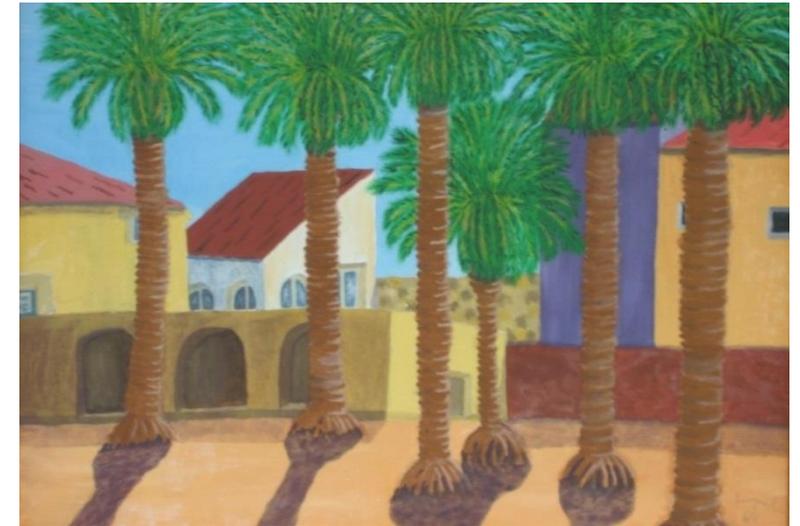
Please look for differences in the three paintings relating, for example, to size and colors! What things have been portrayed differently or been omitted?



Andreas Weißgerber



Helmut Schack



Bernd Hampel



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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Bernd Hampel, Helmut Schack, Andreas Weißgerber	Private/privat	Untitled/ohne Titel	PP	Paintings of Spanish village square/ Gemälde eines spanischen Dorfplatzes