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# Human Learning Some Insights

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# outline of the presentation

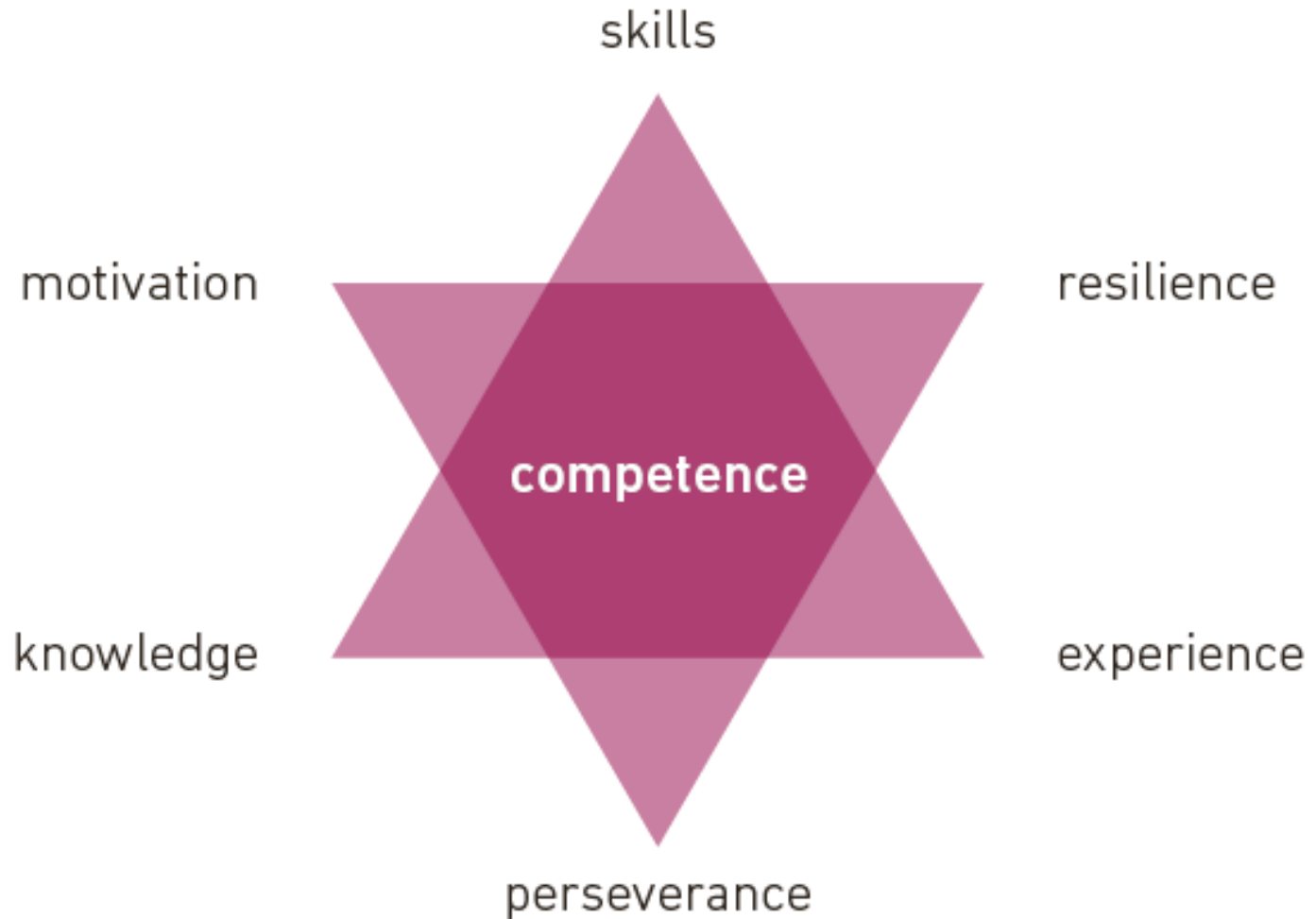
- some biological facts
- learning of competences
- Bloom's taxonomy
- learning culture
- learning in a knowledge based society – challenges
- students and their expectations regarding teachers
- world of work - expectations

# learning – a biological process

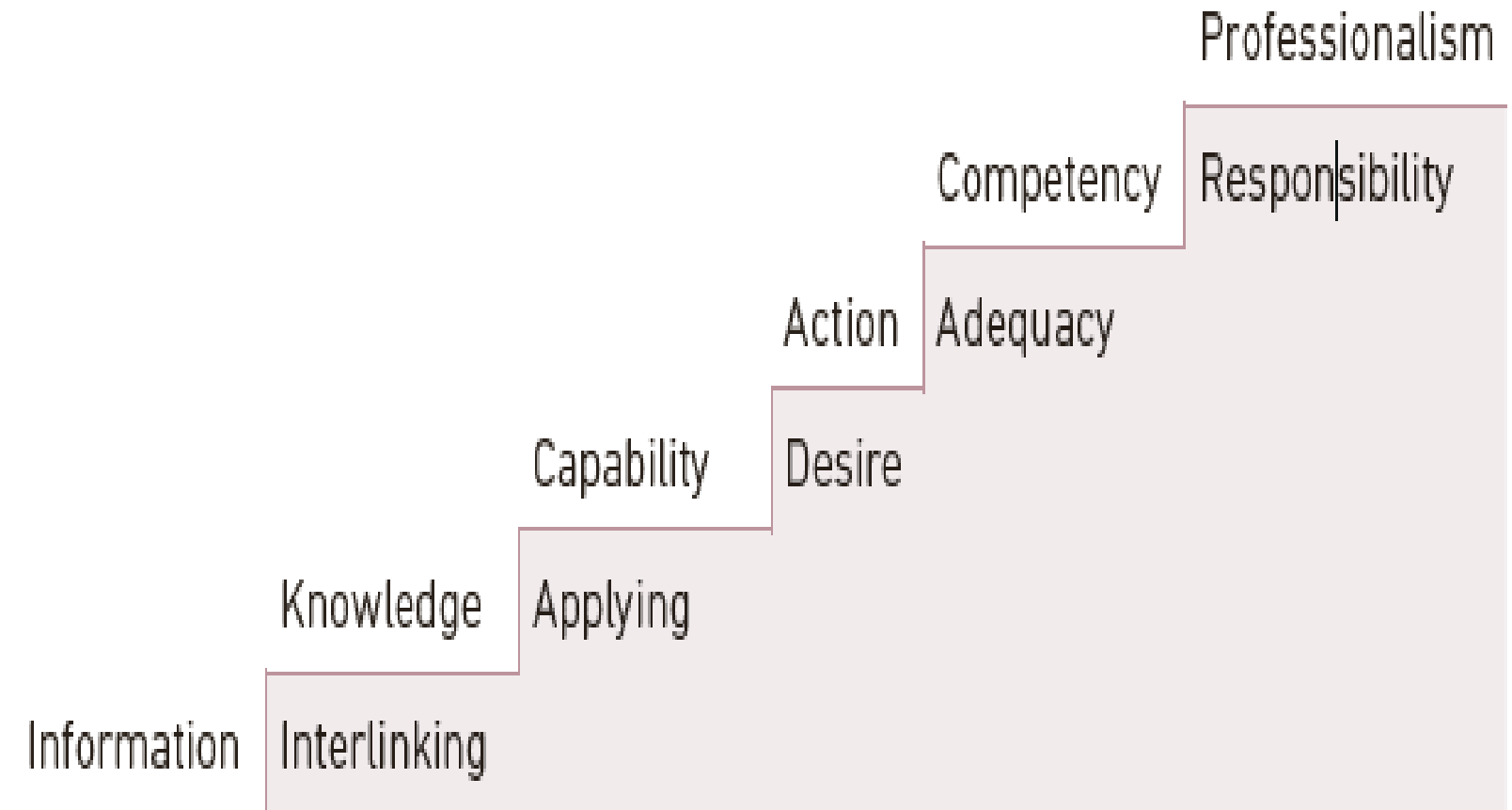


- learning takes place at the level of synapses
- learning needs time
- learning needs repetition
- learning is an evolutionary strategy to adapt to all kind of situations

# learning and competences



# competence stairway model (according to North et al.)

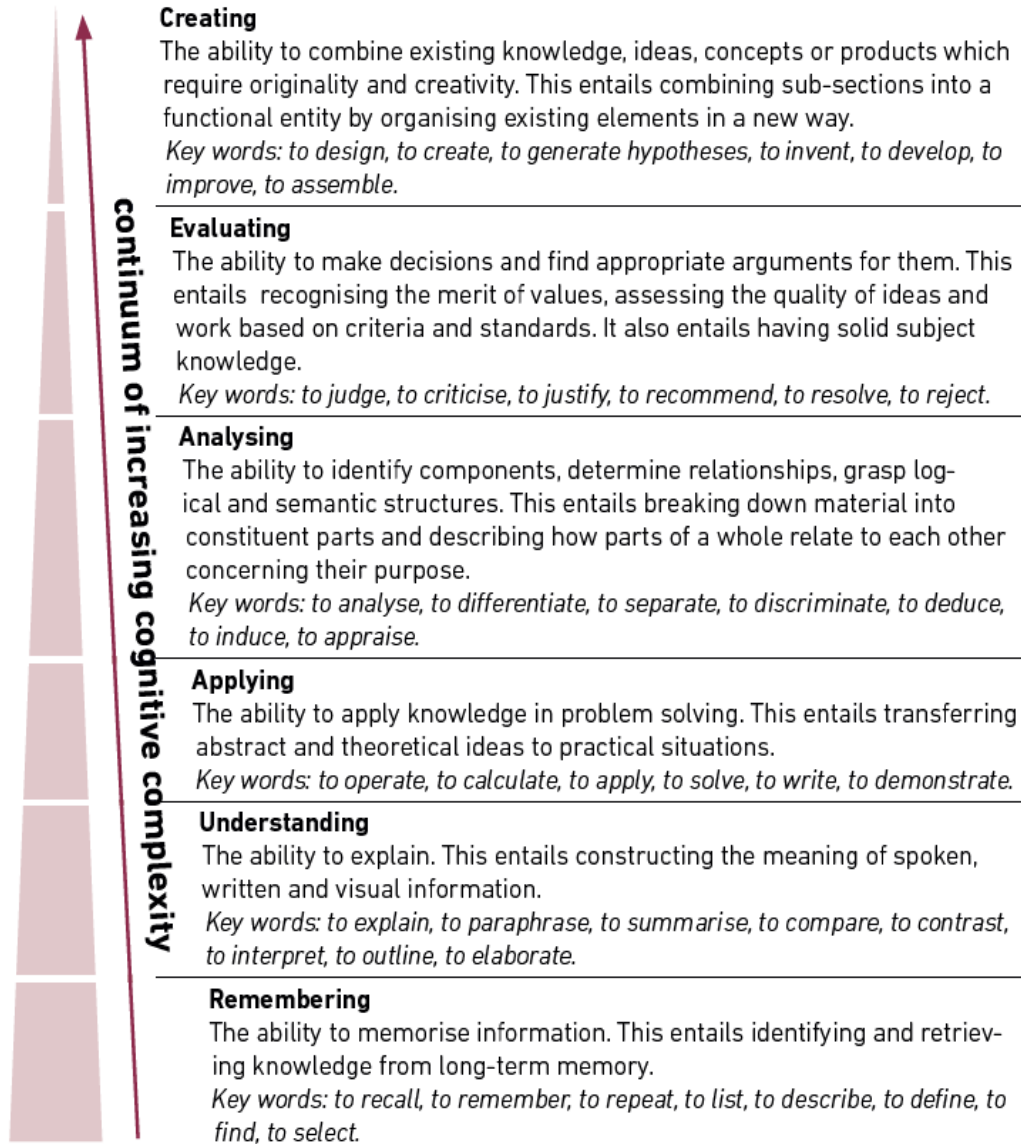


# learning culture

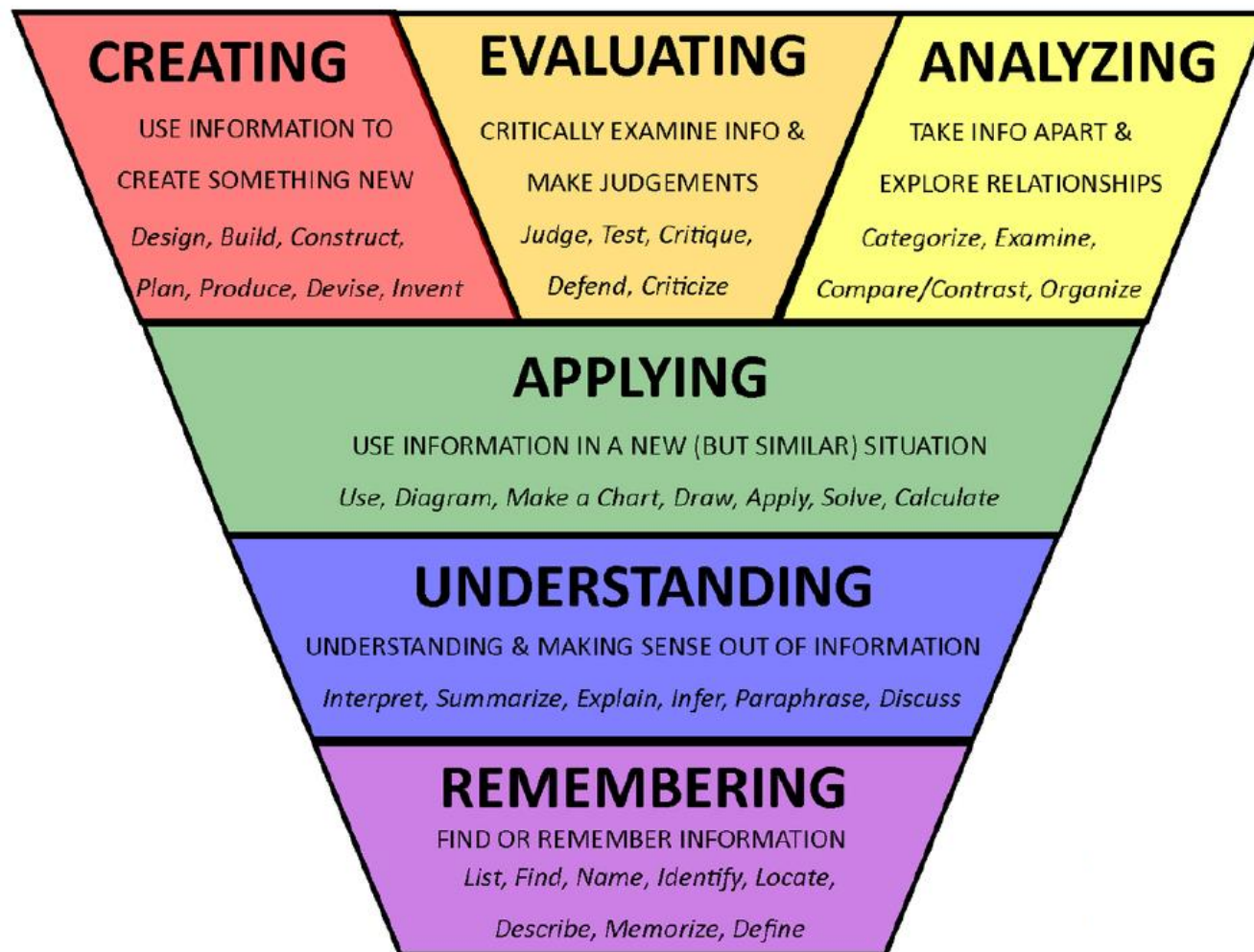
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- new information has to be linked with existing knowledge
- knowledge acquisition is fostered through own activities
- new insights are discovered individually and discussed in groups
- authentic problem-solving increases application in the world of work
- metacognition becomes part of the learning process

# Bloom's taxonomy



# evolution of Bloom's taxonomy





# knowledge based society - challenges

- lifespan of information
- information «explosion»
- widening gap between human nature and intellectual demands in modern societies

# role of teachers - feedback from apprentices about their favourite teacher

- Super teaching arrangements. Great explanations, excellent learning documents, good learning objectives, and fair tests.
- Lively and challenging lessons. Scripts are clear and easy to understand. She is good in explaining things. Always humorous.
- Positive to me are her explanations and examples. The lessons are well structured and well prepared. The learning objectives were always presented at the beginning. She is always polite, friendly and respectful.
- I appreciated the explanations which were always easy to grasp even if the topic was complex and complicated. Her learning objectives are very helpful. The tests were fair – you get tested about the things that were taught to you before.

# **role of teachers - description of teachers favoured by their students at the ZHAW**

Best lecturer because

- he is very competent in his subject area,
- his teaching is interesting,
- he can explain complicated topics easily and effectively,
- he is socially competent (appreciative, humorous, friendly).

**Or:**

Mr. X is always available for his students. He is competent in his subject area and knows how to fascinate the students. He is humorous and always good for a joke. He organizes competitions to motivate us to keep on learning. You can see and feel that he cares about us and that he wants us to enjoy learning.

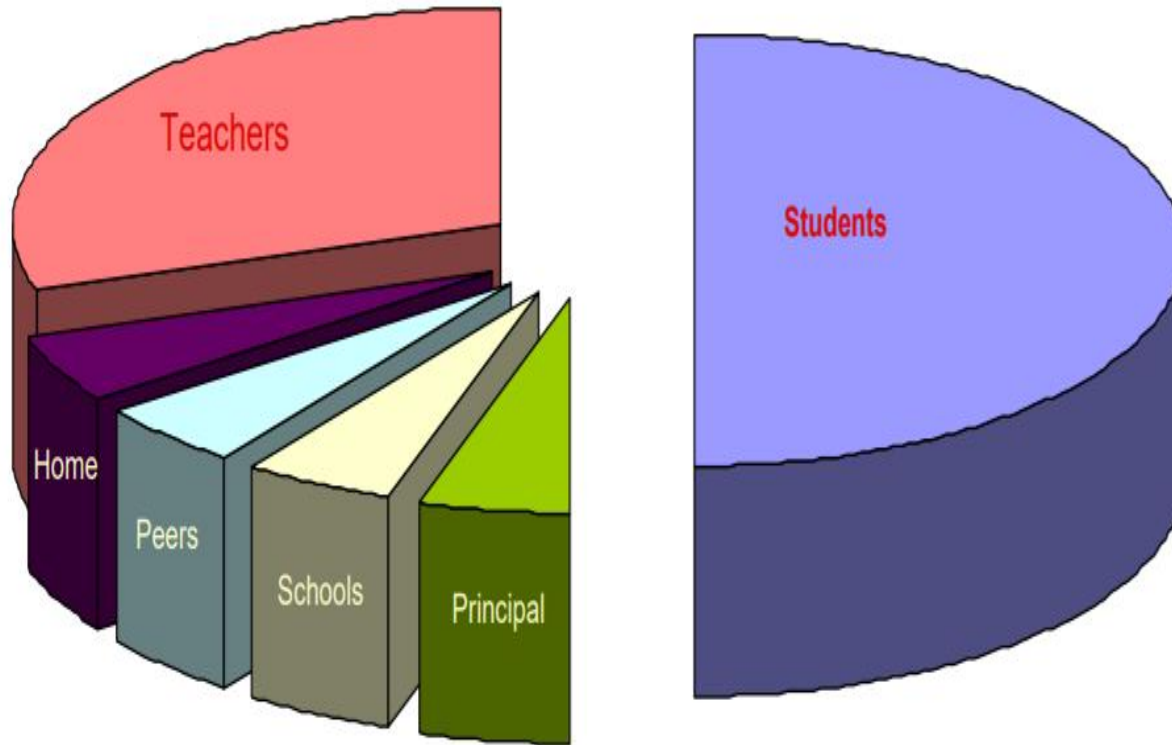
# classroom observation



PH  
ZH

Prof. Dr. Markus Wolf, FHNW  
Adjusting teaching to human biology

# And what is Hattie telling us?



Teachers are among the most powerful influences on learning.

# World Economic Forum Report 2016

## 21st-Century Skills

### Foundational Literacies

How students apply core skills to everyday tasks



1. Literacy



2. Numeracy



3. Scientific literacy



4. ICT literacy



5. Financial literacy



6. Cultural and civic literacy

### Competencies

How students approach complex challenges



7. Critical thinking/  
problem-solving



8. Creativity



9. Communication



10. Collaboration

### Character Qualities

How students approach their changing environment



11. Curiosity



12. Initiative



13. Persistence/  
grit



14. Adaptability



15. Leadership



16. Social and cultural awareness

Lifelong Learning

# the future

- Implanted computer chips?
- Neuroenhancers?
- Genetically modified humans?
- ...

**Thank you for your attention!**

# literature

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