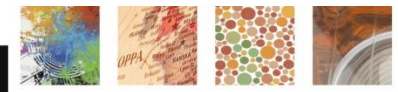




Learning skills and the brain

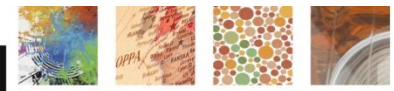
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Intelligence and learning



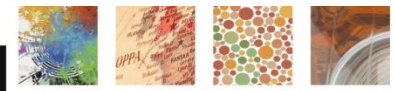
IQ, general intelligence

- Linguistic competence
- Reasoning
- Spatial ability
- Analytic and number skills
- General knowledge
- Visual & auditory processing
- Long-term storage and retrieval
- Working memory and processing speed



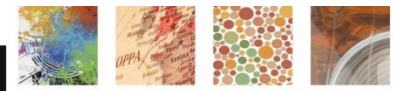
Views of intelligence

- Academic success requires analytical intelligence, GI
- Modern society versus instinctive behavior
 - evolution prepared us for natural surroundings,
 - schooling prepares us for information society
- IQ does not seem to predict expertise nor does it predict the acquisition of complex problem-solving competence



Multiple intelligences

- linguistic,
- bodily-kinesthetic,
- spatial,
- musical,
- logical-mathematical,
- intrapersonal,
- interpersonal,
- naturalist intelligences
- emotional intelligence



Other views on intelligence

- Intelligent action
 - as deciding what to do next;
 - if the environment is well-designed and well-known to the person, intelligent action is greatly facilitated.
 - people are not particularly good at tasks that require abstract reasoning or intensive recall but they excel at using resources in a systematic but creative fashion to work their way to solutions.



Other views on intelligence

- Chinese views of intelligence:
 - focus on hard work and effort,
 - intelligence is not a quality of a person but behavior.
- The Japanese view of intelligence encompasses
 - social competence such as one's ability to sympathize with others.
- African conceptions of intelligence focus on
 - wisdom,
 - trustworthiness and
 - social attentiveness.
- The Cree in Canada (hunters):
 - showing respect, self-control, and listening attentively as essential parts of intelligent behavior, in addition to good sense of direction, wisdom and a quick wit.
 - Insensitivity, living like a white, and craziness were seen as negative competences.



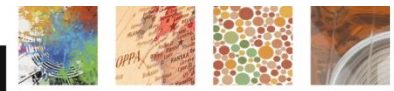
Successful intelligence (Sternberg)

- analytical intelligence,
- practical intelligence
- creative intelligence
- executive processes to plan and control activity are instrumental for successful performance.

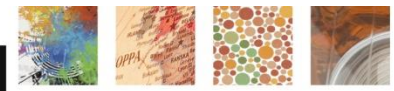


Types of intelligence and teaching

- Experiment with four methods
- One group was subjected to the "traditional" teaching method that is called *memory condition*, which includes presenting the material which students have to memorize and represent.
- In the *analytical condition*, students are asked to compare and contrast theories.
- In the *creative condition*, they are asked to formulate their own theory based on the facts.
- In the *practical condition*, they are asked to apply the theoretical knowledge in a real-life problem.



- Memory condition teaching resulted in an inferior outcome than other methods.
- Students who were subjected to a multicondition teaching that included
 - analytical,
 - practical, and
 - creative methods,
- performed best in all types of tests that included practicing analysis, creativity, and practical application,
- even in better memorization of the material than the memory condition students



Keys to study success

- Important factors:
- Motivation, interest in studies
- Determination, hard work
- Self-regulation, metacognition



Growth mind-set

- Focus on effort rather than on talent produces high achievers in school life.
- Attributing poor performance to a lack of ability depresses motivation and leads to a helpless attitude.
- Mistakes are problems to be solved!
- Motivation: those who place high premium on learning rather than on getting good grades, earned the best grades

