



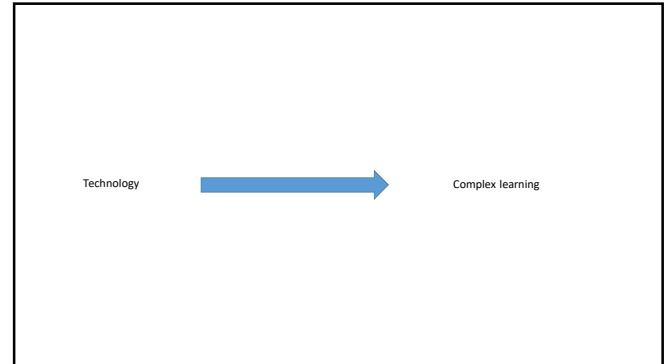
EUROCALL

Dealing with complex learning:

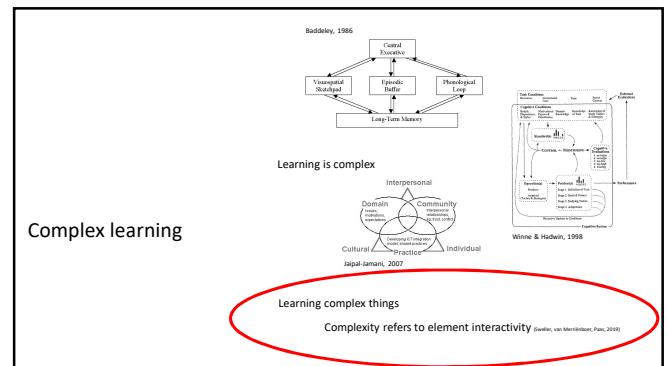
opportunities offered by technology

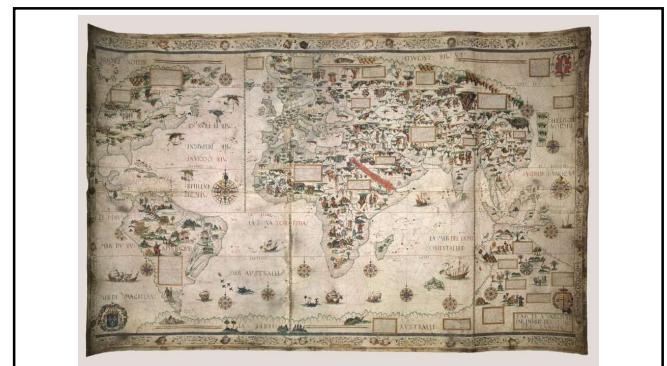
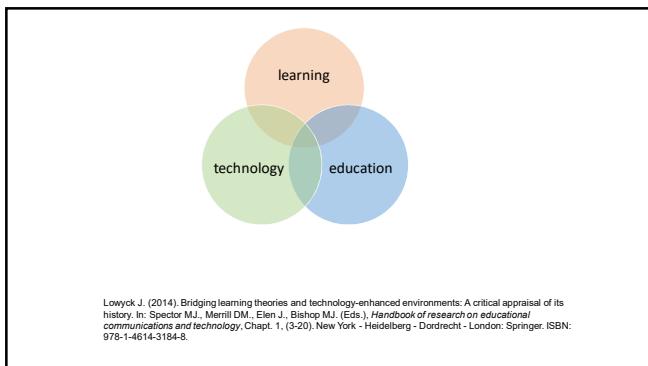
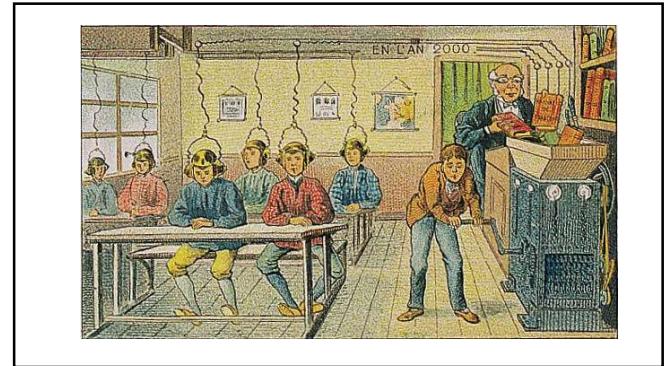
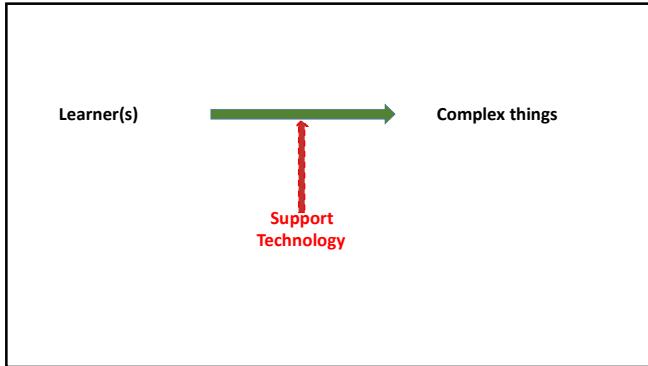
Jan Elen
August 2019

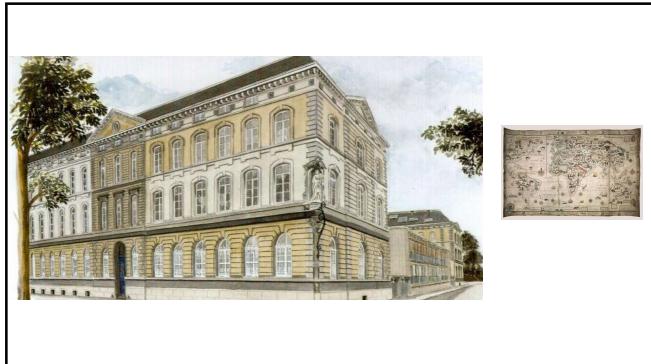
KU LEUVEN

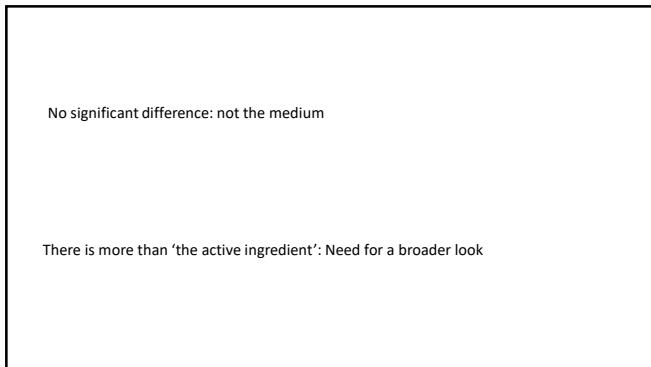
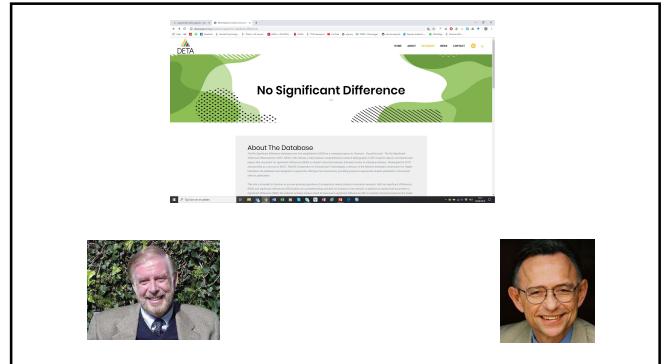



Complexity is important	Growing	More ingredients More patterns More ...
Complex learning is difficult	Multiple elements and their interactions to be considered	Working memory limited









Still relevant?



<http://englishworks.wikispaces.com/2014/01/20/education+technology+does+every+teacher+should+know+about/>

Merriam-Webster: the practical application of knowledge especially in a particular area
Collings: **Technology** refers to methods, systems, and devices which are the result of scientific knowledge being used for practical purposes

Technology for education Technology of education




Technology for education

Technology of education



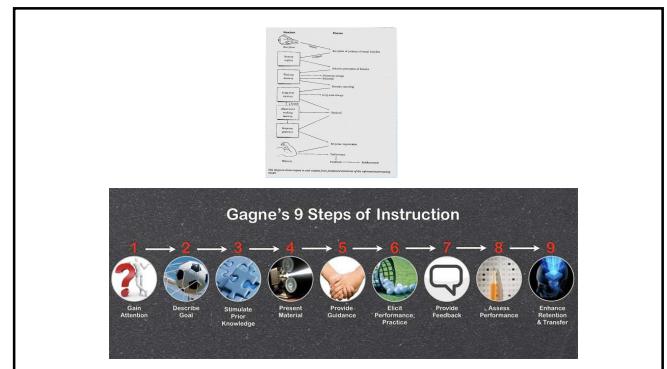
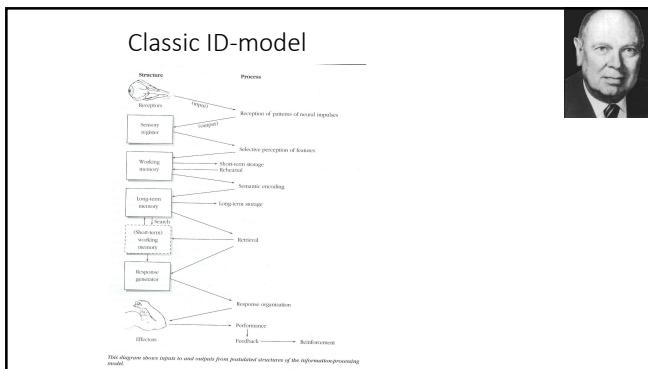
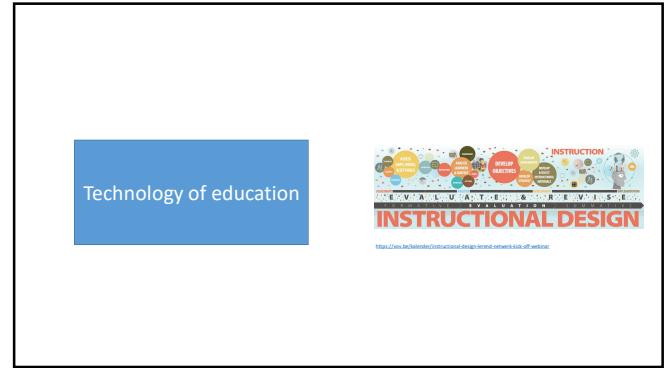
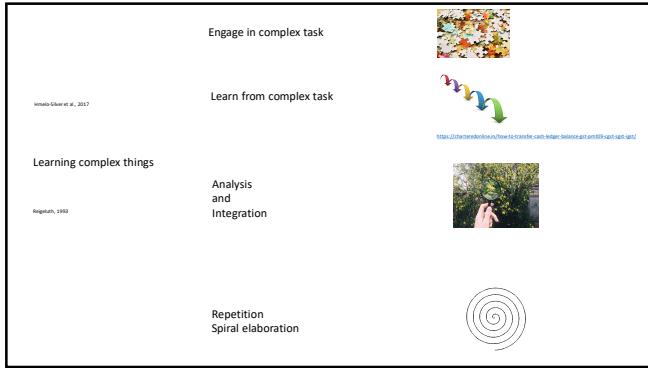
Learning complex things

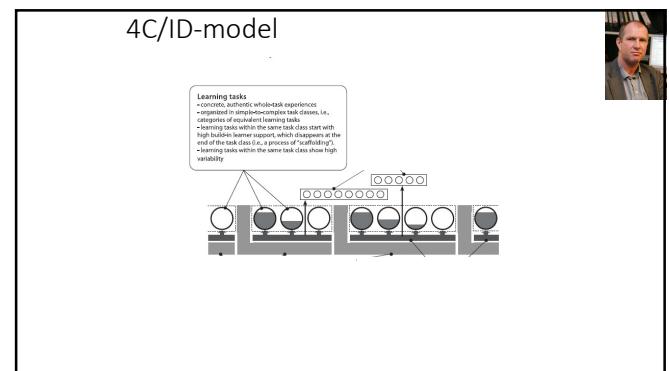
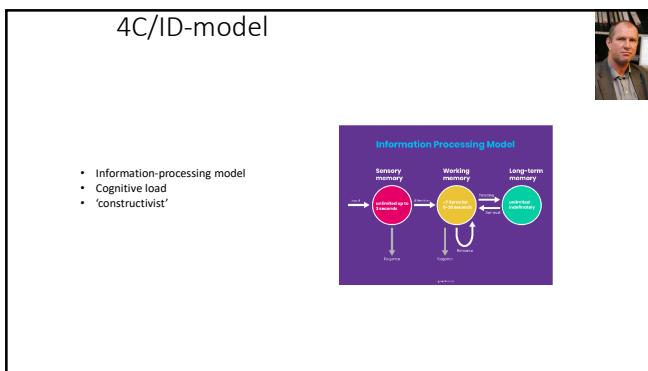
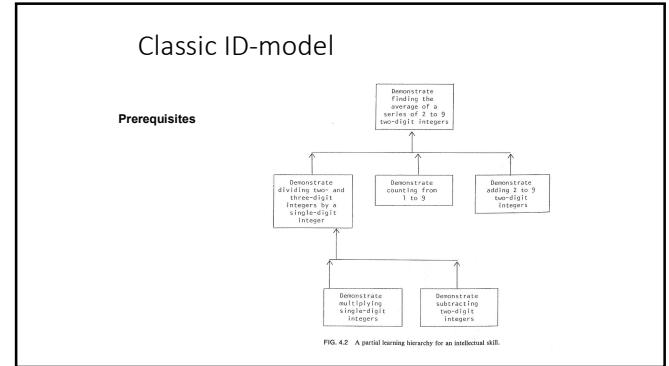
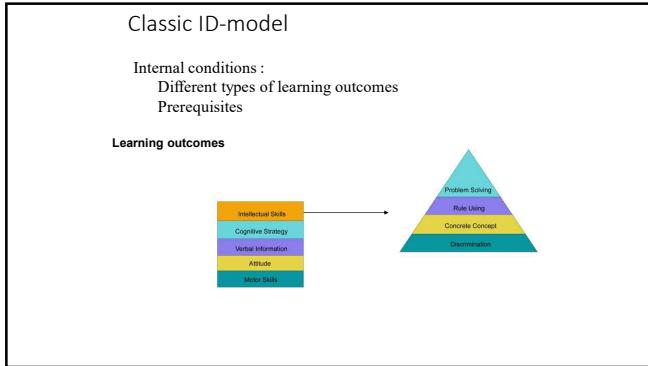
competencies

“Complex learning involves “integrating knowledge, skills, and attitudes; coordinating qualitatively different constituent skills; and often transferring what is learned in school or training settings to daily life and work settings”.
van Merriënboer & Kirschner, 2018

Dispositions (Perkins)

“triadic dispositions which emphasizes (a) **inclinations**, which may reflect motivation, habit, policy, or other factors; (b) **sensitivity** to occasion; and (c) **abilities** themselves”
Perkins, Jay Tishman, 1993





Learning tasks

Learning tasks

Learning tasks

Supportive information

(Sugar, et. al., 2010 & Mullamphy et. al., 2010)

Supportive information

MULTIMEDIA

Just-in-time information

feedback

structuring

prompting

<http://www.know-2.org/images/celab.gif>

Just-in-time information

feedback

structuring

prompting

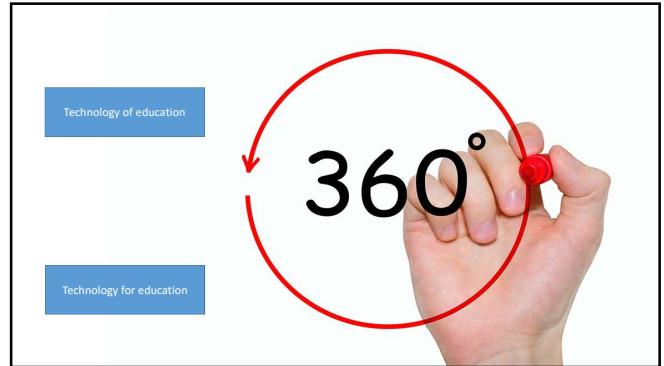
Semantic: Knowledge Inspiration Environment

Part-task practice



web-based inquiry science environment

<https://wise.berkeley.edu/>



Instructional disobedience

Instructional goals
Learning in school

Drop-out rates

Limited transfer




Bates, P. (2016). Instruction in online courses: Expectations for student outcomes – A literature review. *Learn Open*, 4(1) 1-11.

