Open learning requires open minds: The challenges of online and blended learning environments for NetGen students and their instructors

Thomas C. Reeves
The University of Georgia

2014 Chais Conference
for Innovation and Learning Technologies

Tom Reeves

Trisha Reeves

Zipper

The University of Georgia

Keynote

- Challenge assumptions
- Raise questions
- Promote change

Goals

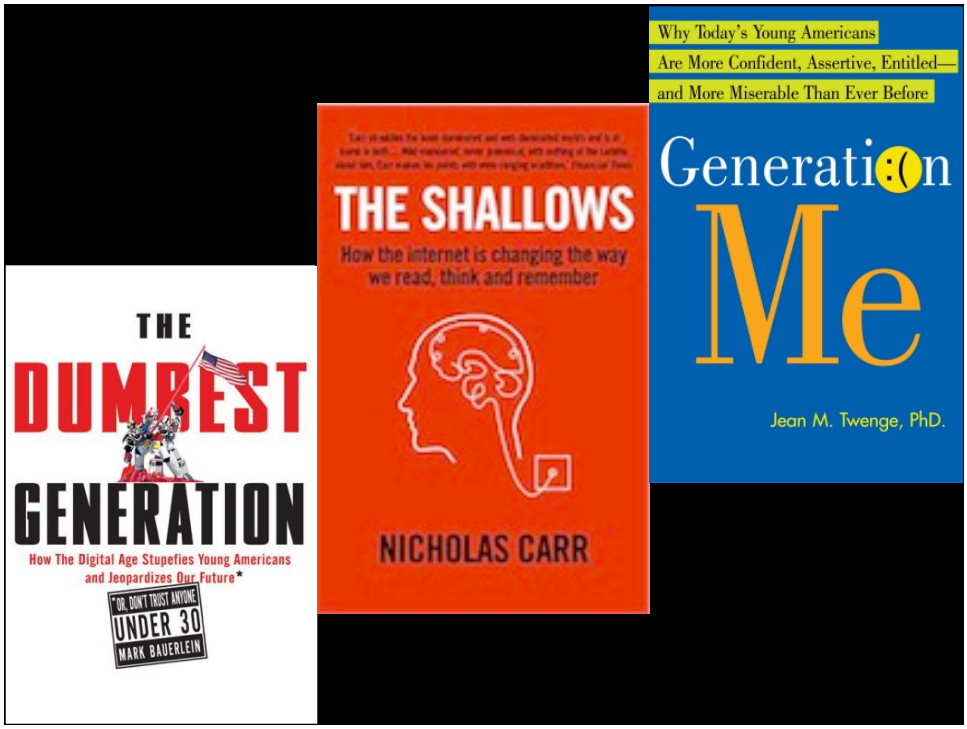
- Question what we believe and disbelieve about learning, technology and today's students
- Enthusiastically endorse learning online through authentic tasks
- Reorient our online learning research from "things" to "challenges"

Generational Boundaries

- **Baby Boomers**
  - Born between 1946 and 1964
- **Generation X**
  - Born between 1965 and 1980
- **Net Gen – Millennials – Gen Y**
  - Born between 1981 and 2000

- Generation Y
- Millennials
- Net Generation
- Generation Next
- Echo Boomers
- Boomerang Generation
- Wireless Generation
- Generation Me

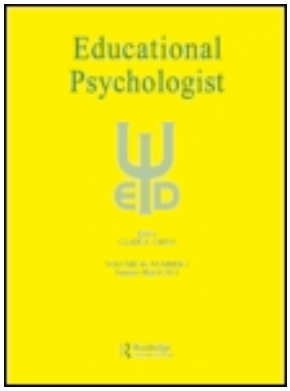
Teaching
DIGITAL NATIVES
PARTNERING FOR REAL LEARNING
FOREWORD BY STEPHEN HEPPELL
MARC PRENSKY
UNDERSTANDING THE iGENERATION
AND THE WAY THEY LEARN
Rewired
Larry D. Rosen, Ph.D.
Homo Zappiens
Growing up in a digital age
Podcasting
Video blog
P2P
Linkedin
Community
Presence Lulu
Netvibes
Flosse Posse
Wim Veen
and Ben Vrakking


THE
DUMBEST
GENERATION
How The Digital Age Stupefies Young Americans and Jeopardizes Our Future*
*OR, DON'T TRUST ANYONE UNDER 30
MARK BAUERLEIN
THE SHALLOWS
How the internet is changing the way we read, think and remember
NICHOLAS CARR
Why Today's Young Americans
Are More Confident, Assertive, Entitled—
and More Miserable Than Ever Before
Generation :(
Me
Jean M. Twenge, PhD.

Open Learning Requires Open Minds

Do Learners Really Know Best? Urban Legends in Education

- digital natives
- learning styles
- self-educators



Kirschner & Van Merrienboer, 2013

Kirschner & Van Merrienboer, 2013

- "Overwhelming evidence" that digital natives do not exist
- Today's learners may actually suffer when educators attempt to cater to them

Multitasking hinders learning

- Multitasking actually requires task switching
- Task switching overloads cognitive functioning and impairs learning

Kirschner & Van Merrienboer, 2013

- Little scientific evidence supports the existence of learning styles
- Trying to accommodate learners with different learning styles with different methods is a waste of resources

"In summary, there presently is no empirical justification for tailoring instruction to students' supposedly different learning styles."

Rohrer, D. & Pashler, H. (2012), Learning styles: Where's the evidence? *Medical Education*, *46*, 634–635.

Learning Styles Dichotomies

- convergers versus divergers
- verbalisers versus imagers
- holists versus serialists
- deep versus surface learning
- activists versus reflectors
- pragmatists versus theorists
- adaptors versus innovators
- assimilators versus explorers
- field dependent versus field independent
- globalists versus analysts
- assimilators versus accommodators
- imaginative versus analytic learners
- non-committers versus plungers
- common-sense versus dynamic learners
- concrete versus abstract learners
- random versus sequential learners
- initiators versus reasoners
- intuitionists versus analysts
- extroverts versus introverts
- sensing versus intuition
- thinking versus feeling
- judging versus perceiving
- left brainers versus right brainers
- meaning-directed versus undirected
- theorists versus humanitarians
- activists versus theorists
- pragmatists versus reflectors
- organisers versus innovators
- lefts/analytics/inductives/successive processors versus rights/globals/ deductives/simultaneous processors
- executive, hierarchic, conservative versus legislative, anarchic, liberal

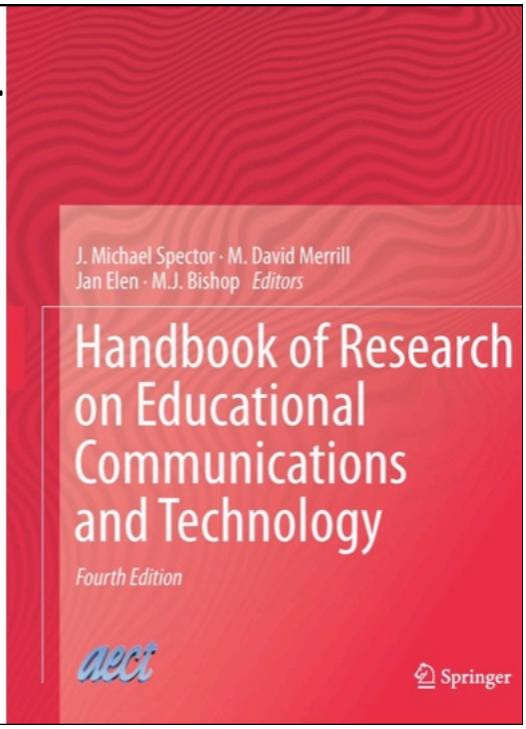
Kirschner & Van Merrienboer, 2013

- Students as "self learners" using the Internet is a myth
- Students make bad choices when given too much control over instructional variables

Students of all generations have unacceptably low levels of information literacy.

Oh & Reeves, 2014

- No consensus on Net Gen characteristics sufficient for use as a solid conceptual framework or as a variable in research studies
- Speculative assumptions must be replaced by substantive studies



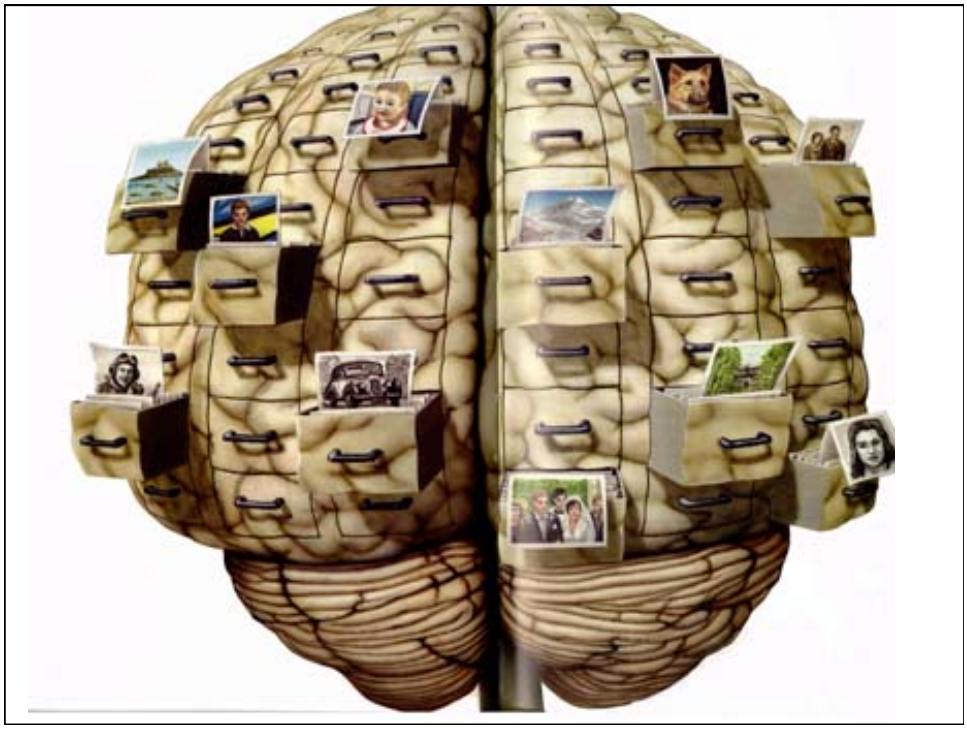
Kirschner, P. A., Sweller, J., & Clark, R. E. (2006). Why minimal guidance during instruction does not work: An analysis of the failure of constructivist, discovery, problem-based, experiential, and inquiry-based teaching. *Educational Psychologist*, *41*(2), 75-86.

Kirschner

Sweller

Clark

http://www.cogtech.usc.edu/publications/kirschner_Sweller_Clark.pdf

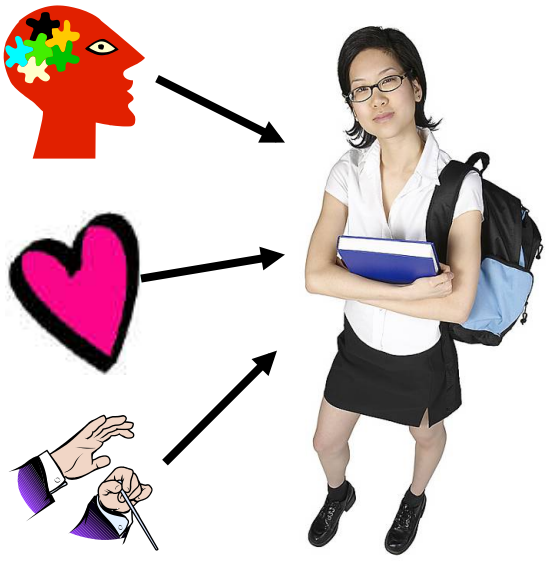


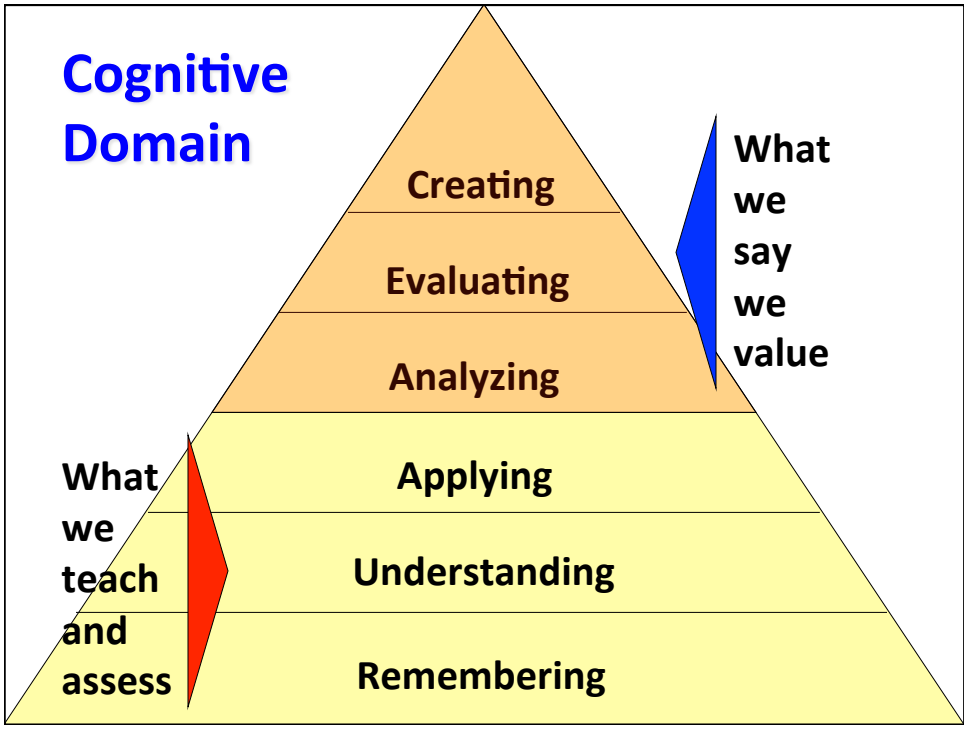
21st Century Outcomes

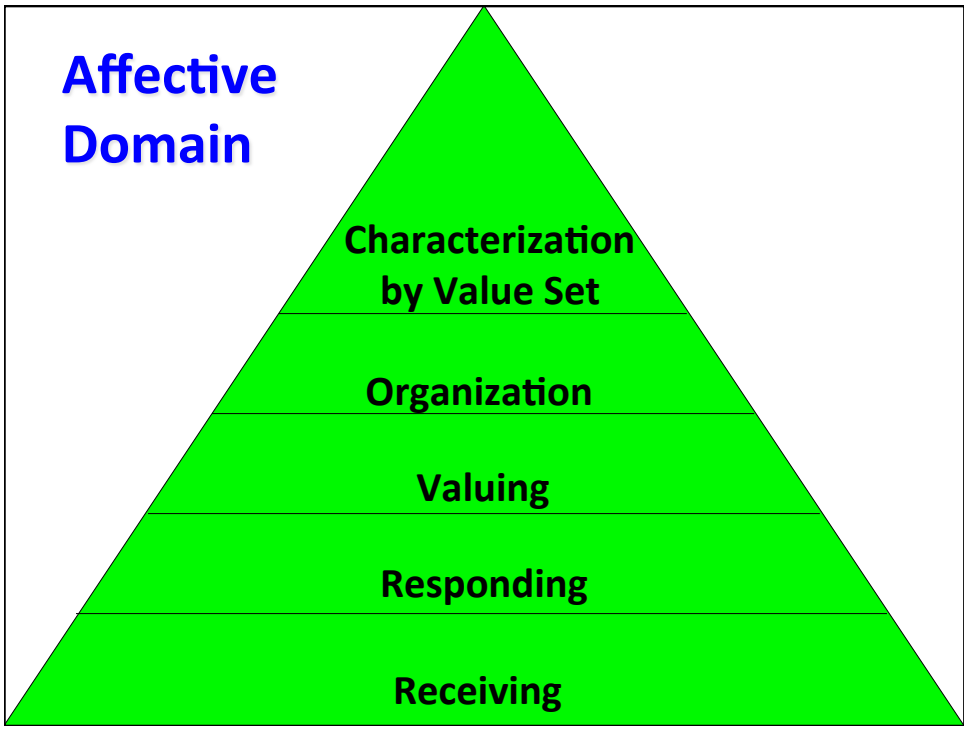
- Accessing and using information
- Communicating across cultures
- Demonstrating effort and commitment to high quality work
- Applying rules and procedures
- Being creative
- Thinking critically
- Making sound judgments
- Problem-solving
- Life-long learning
- Exhibiting intellectual curiosity

Traditional Learning Domains

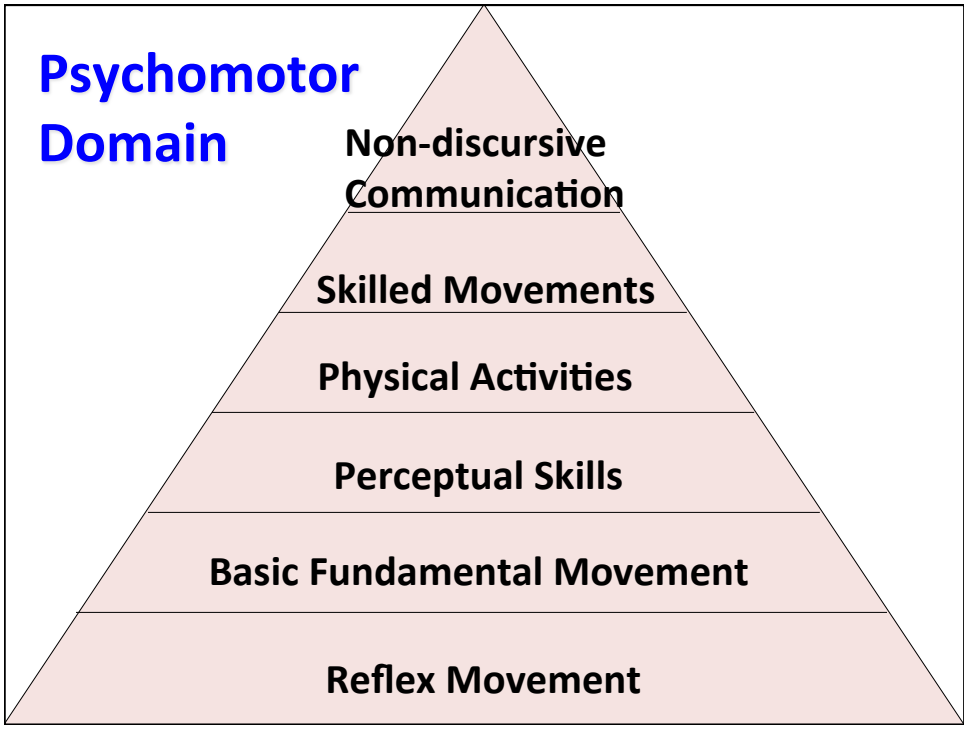
- **Cognitive**
- **Affective**
- **Psychomotor**




Cognitive Domain
Creating
Evaluating
Analyzing
Applying
Understanding
Remembering
What we say we value
What we teach and assess


Affective Domain
Characterization by Value Set
Organization
Valuing
Responding
Receiving

Psychomotor Domain

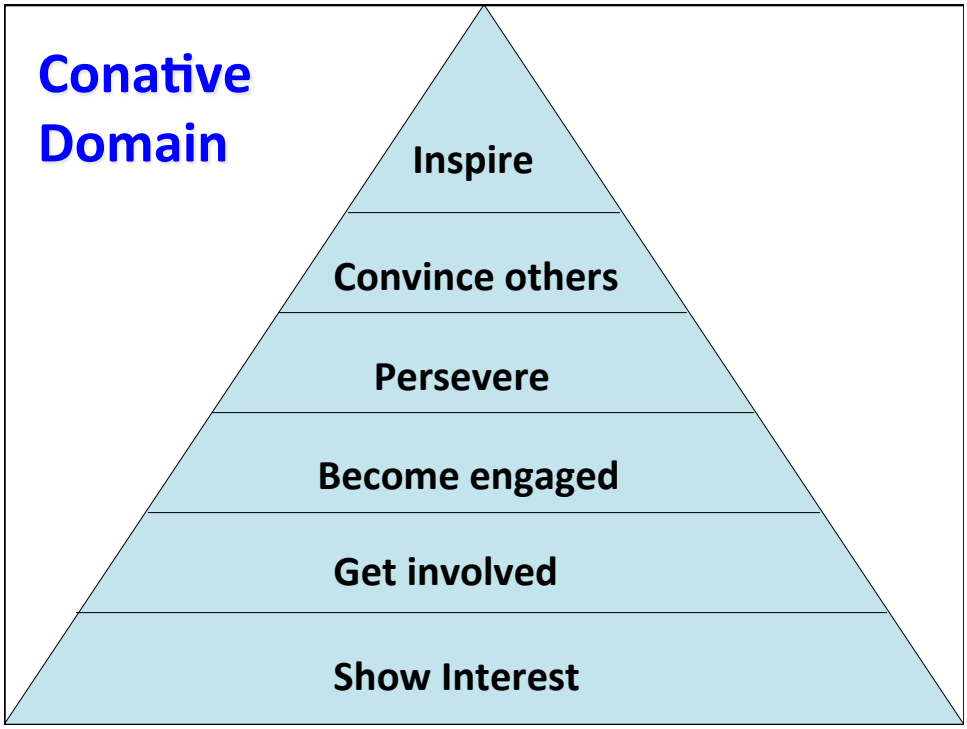


Unfortunately, Kirschner et al. 2006 (and most of us) ignore an entire domain of learning.

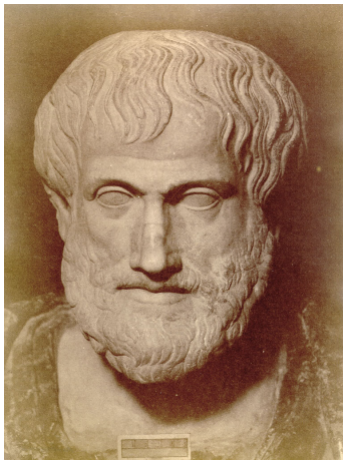
Conative Domain

- Will
- Action
- Self-determination
- Level of effort
- Mental energy
- Drive
- Striving
- Intention

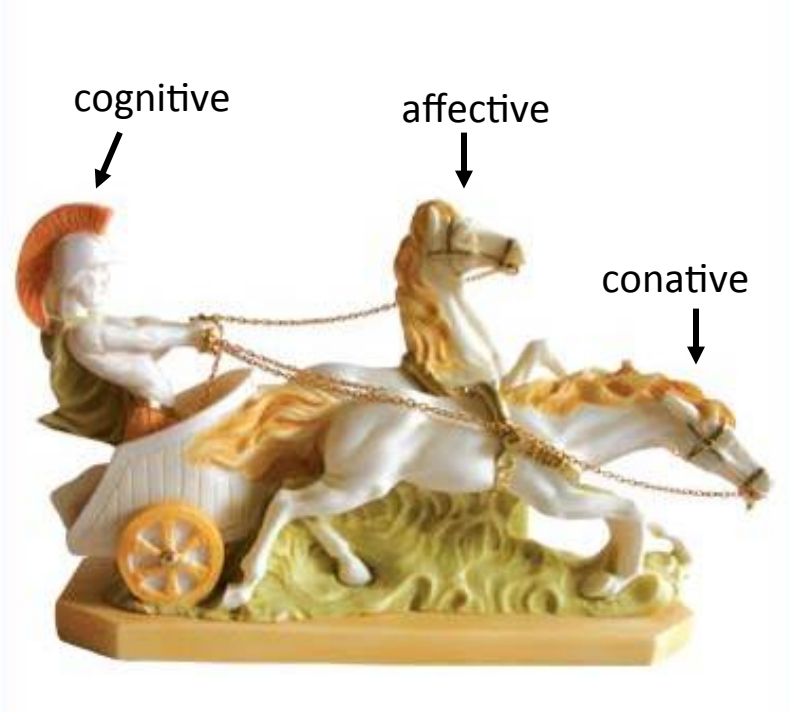
Conative Domain

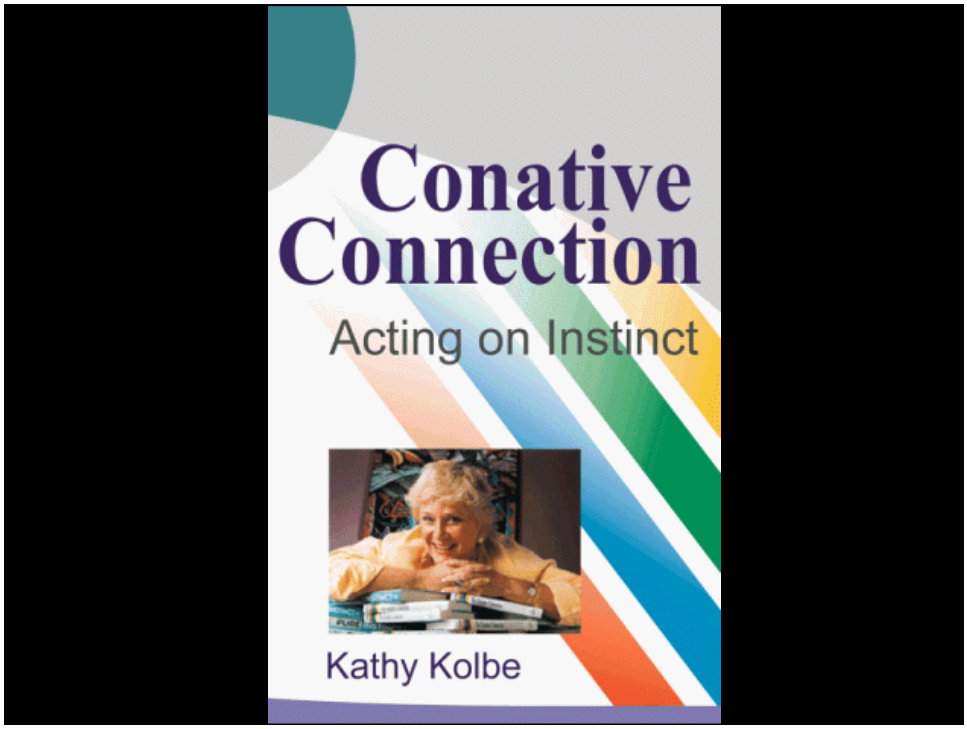


Orexis: (Greek) Striving; desire; the conative aspect of mind



Aristotle





Cognitive – Affective – Conative

• To know	• To desire	• To do
• Thinking	• Feeling	• Willing
• Thought	• Emotion	• Volition
• Epistemology	• Esthetics	• Ethics
• Knowing	• Caring	• Doing

Grit

- Grit (defined as "the perseverance and passion for a long-term goal") is a strong predictor of the accomplishment of high-achievers in many fields.
- Grit is not positively related to IQ.

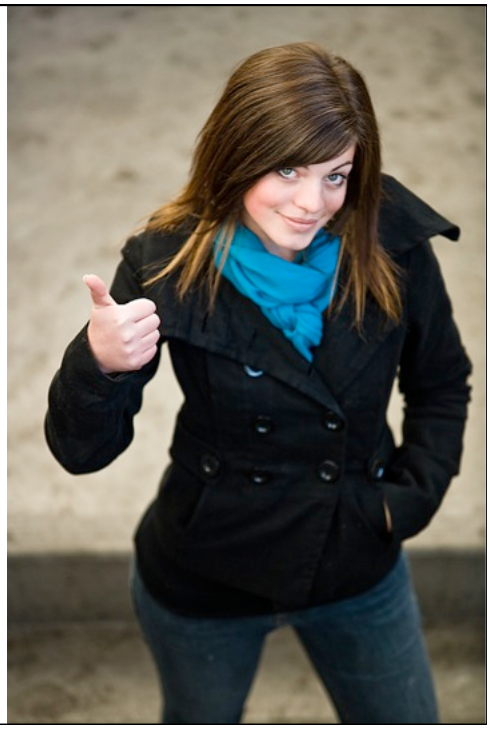
Angela Lee Duckworth

West Point Cadets

- Grit predicted retention more robustly than did:
  - self-discipline,
  - Whole Candidate Score (high school rank, aptitude tests, leadership potential rating, etc.)
- Grit predicted drop outs better than all other measured variables combined

Keys to Success

- Grit
- Self-control
- Zest
- Social intelligence
- Gratitude
- Optimism
- Curiosity



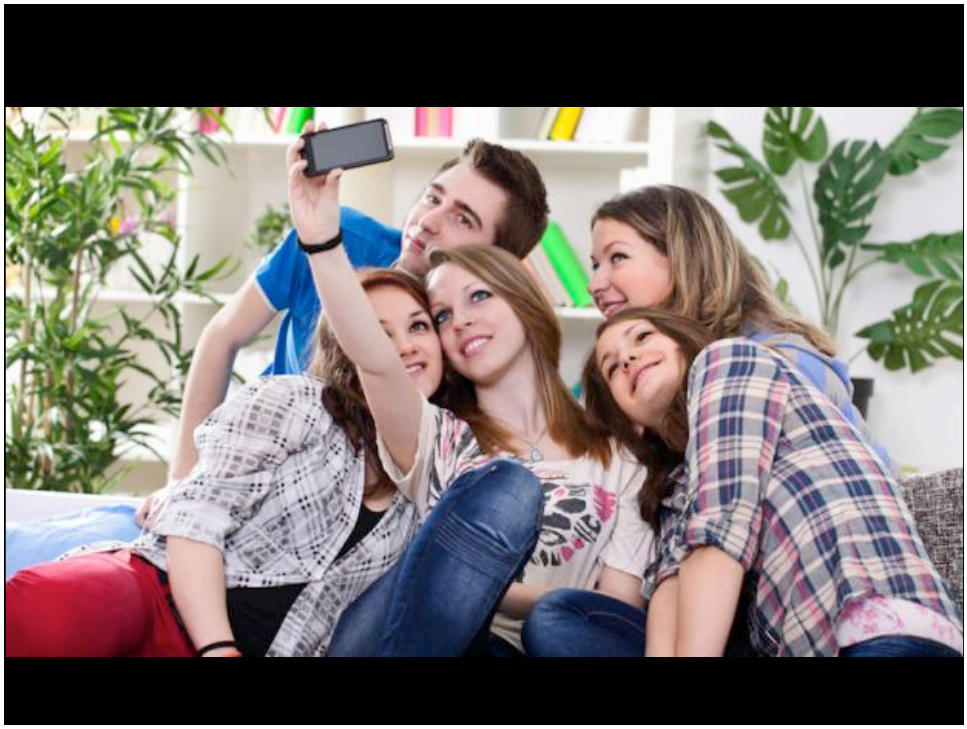
Unfortunately, studies show that NetGen students rarely read books and they study far too little.

National Survey of Student Engagement

- Work expectations for students:
  - –10-15 hrs in class
  - –25-30 hrs studying

National Survey of Student Engagement

- Work Reality:
  - –20% study 5 hrs per week or less
  - –25% 6-10 hrs
  - –48% 11-30 hrs
  - –7% > 30 hrs



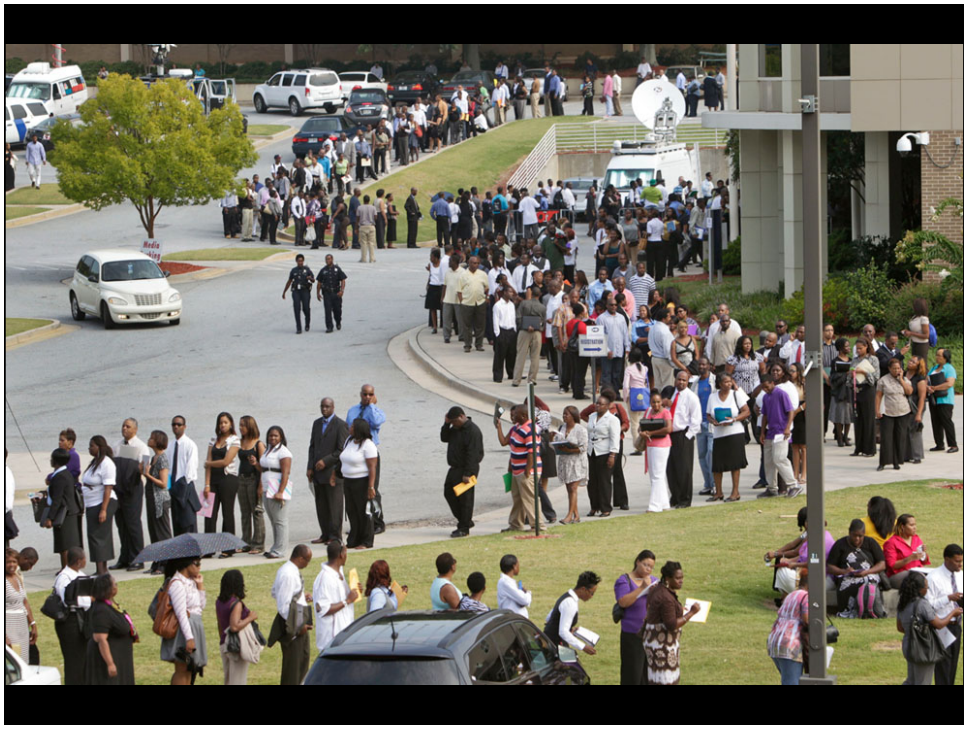
Should we require more of today's young generation?

53% of Recent College Grads Are Jobless or Underemployed—How?

By Jordan Weissmann

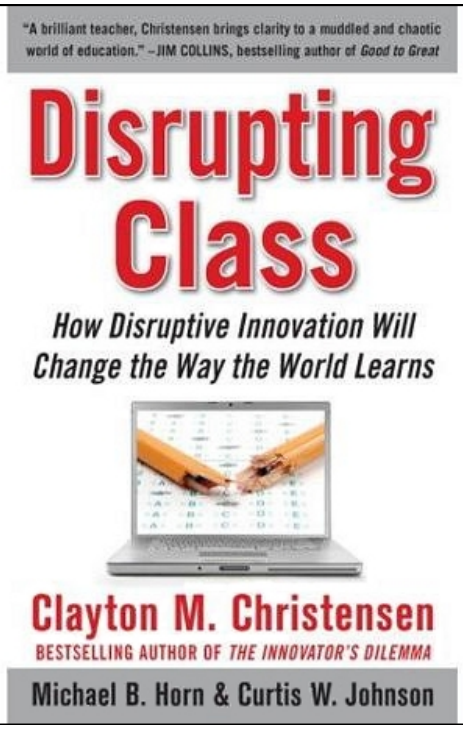
A college diploma isn't worth what it used to be. To get hired, grads today need hard skills.

the Atlantic



Some people continue to assume that technology will be enough to improve education.

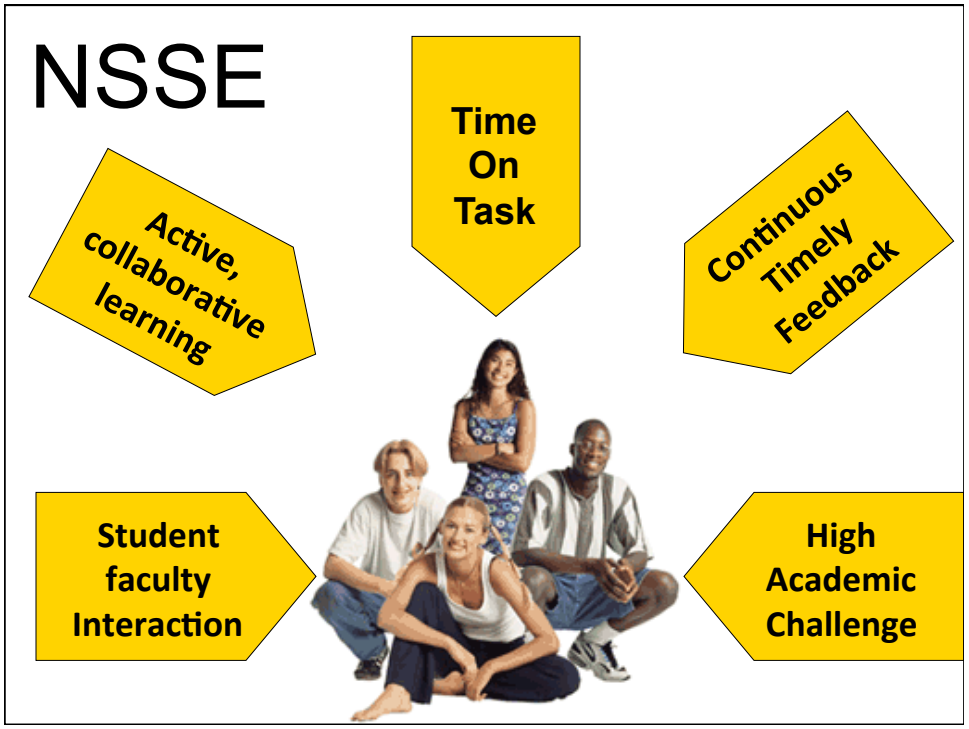
Technology will replace teaching as we know it. "because of the technological and economic advantages of computer-based learning, compared to the monolithic school model" (p. 99).



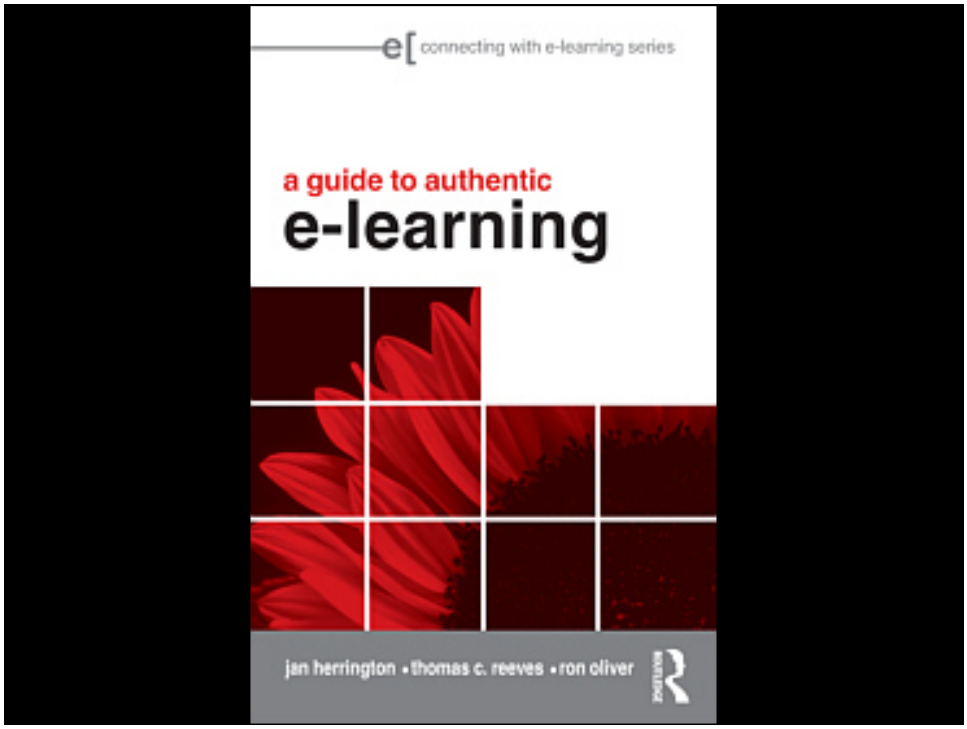
New Zealand Classroom: From Alexander Turnbull Library, Wellington.
1884

Technology role in learning environments:

- Technology does not influence learning directly.
- Technologies are vehicles for instructional methods that account for learning.
- Instructional methods are the active agents in an educational technology just as an acid compound is the active agent in aspirin regardless of the medium.


NSSE
Time On Task
Active, collaborative learning
Continuous Timely Feedback
Student faculty Interaction
High Academic Challenge

GO AUTHENTIC!



Herrington, Reeves, Oliver

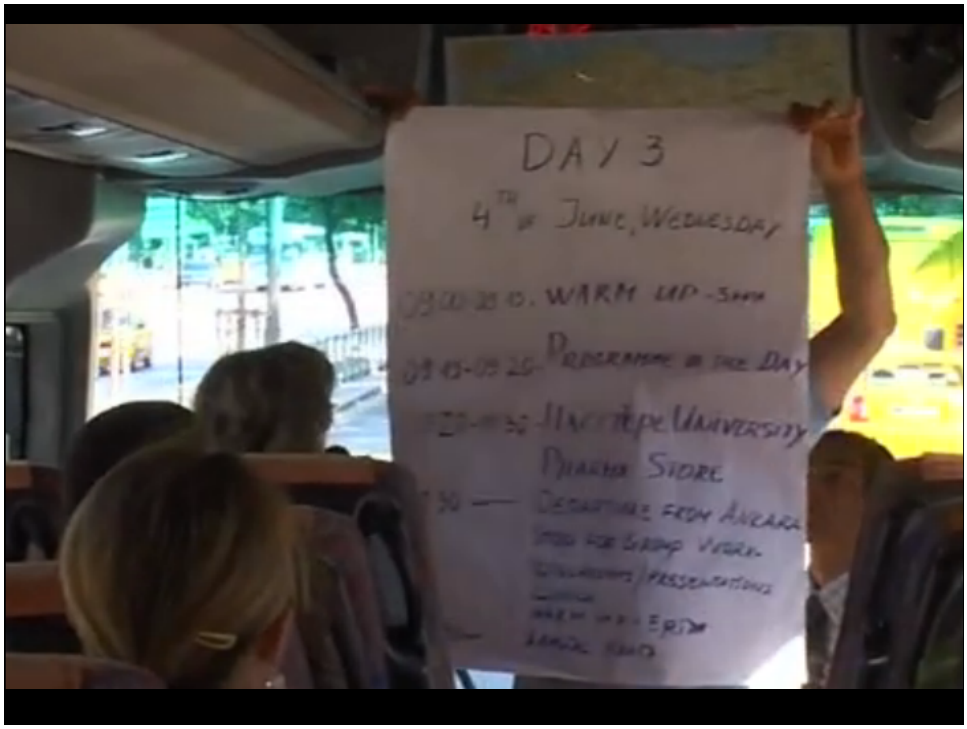
Authentic learning design principles

- Provide **authentic contexts** that reflect the way the knowledge will be used in real life
- Provide **authentic tasks**
- Provide access to **expert performances** and the modeling of processes Provide **multiple roles and perspectives**
- Support **collaborative construction of knowledge**
- Promote **reflection** to enable abstractions to be formed
- Promote **articulation** to enable tacit knowledge to be made explicit
- Provide **coaching and scaffolding** by the mentor at critical times
- Provide for **authentic assessment** of learning seamlessly integrated within the tasks.

From Herrington, Reeves and Oliver, (2009). *A guide to authentic e-learning*. London: Routledge.

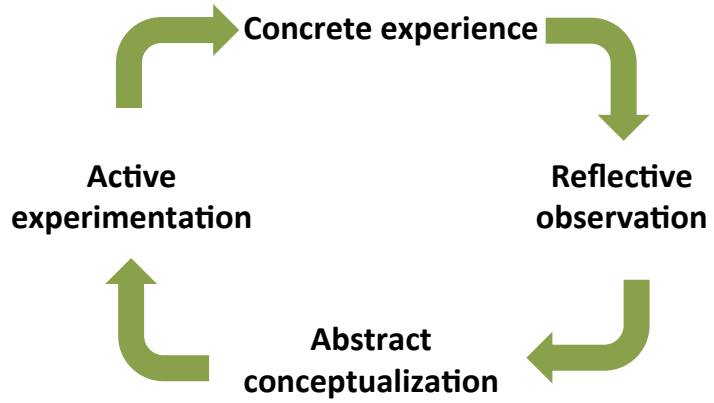
Case Study

Converting an Experiential Learning Course into an Online Learning Environment


DAY 3
4TH of June, Wednesday
WARM UP
Programme of the Day
Hacettepe University
Pharma Store
Departure from Ankara

Distribution

Model of Instruction: Experiential and social learning theories



From Kolb, D. A. (1984). *Experiential Learning*. Englewood Cliffs, NJ.: Prentice Hall.

Design Team in Antalya, Turkey

Extensio et Progressio

e-Pharmaceutical Cold Chain Management Course
http://www.epela.net/epela_web/index.php

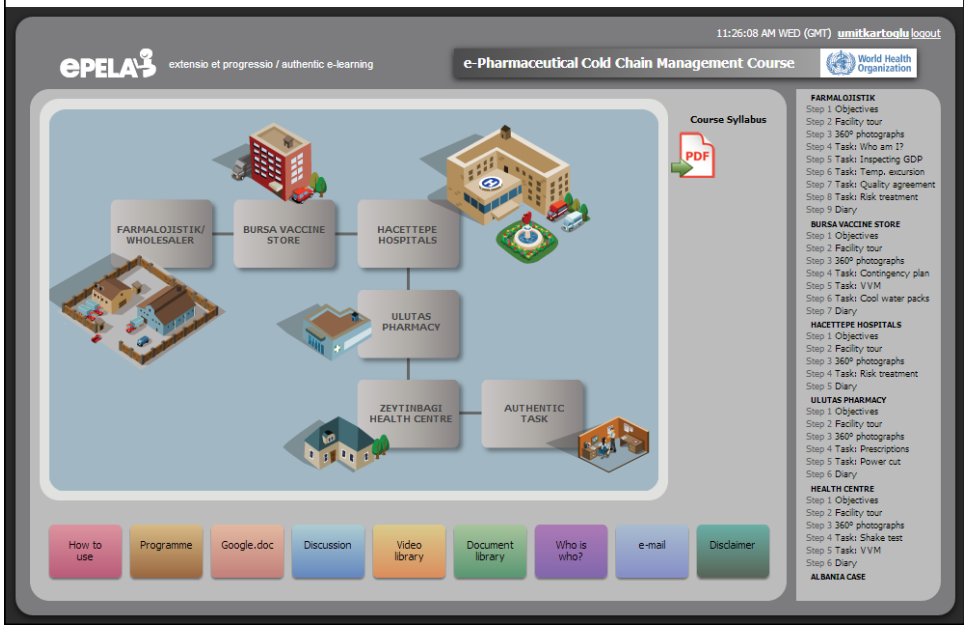
Dr. Ümit Kartoglu
World Health Organization

Low order, discrete ← learning objectives → High order, robust

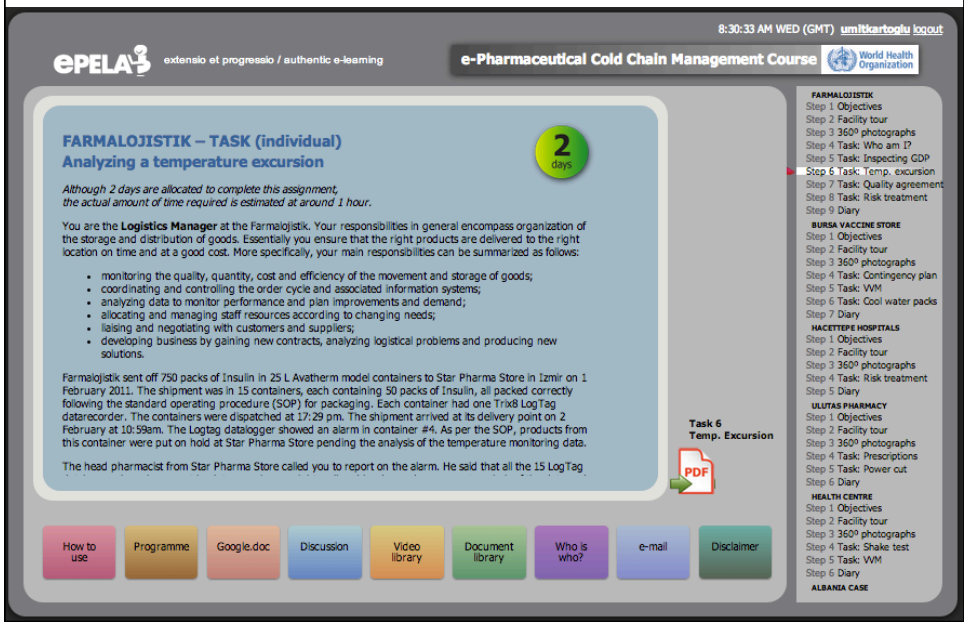
Objectives

Knowledge dimensions	Cognitive process dimensions					
	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating
Factual knowledge				1	2	2
Conceptual knowledge	1	1			2	2
Procedural knowledge			1	1	3	2
Metacognitive knowledge				1	2	3

One right answer ← **nature of content** → Multiple perspectives

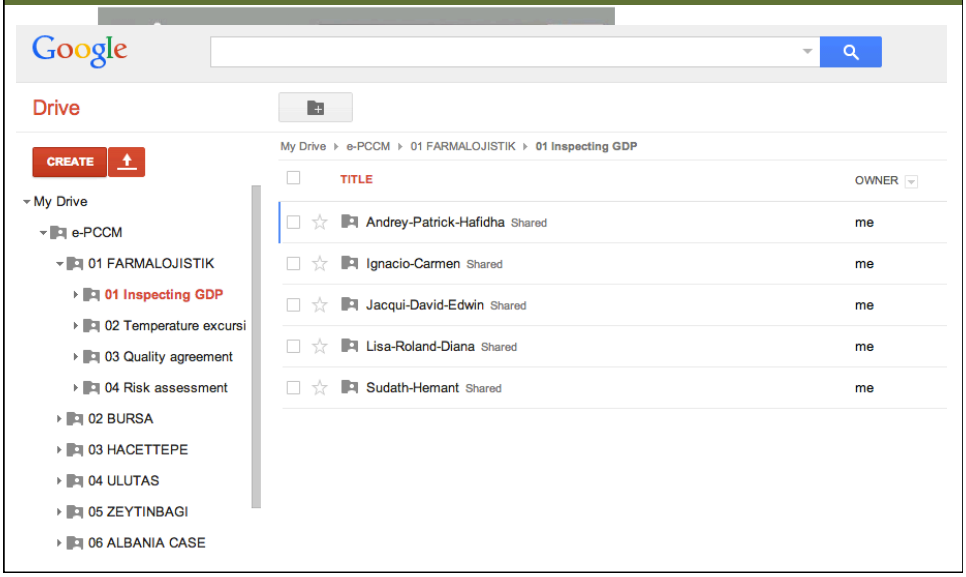


Direct instruction ← **model of instruction** → Experiential learning



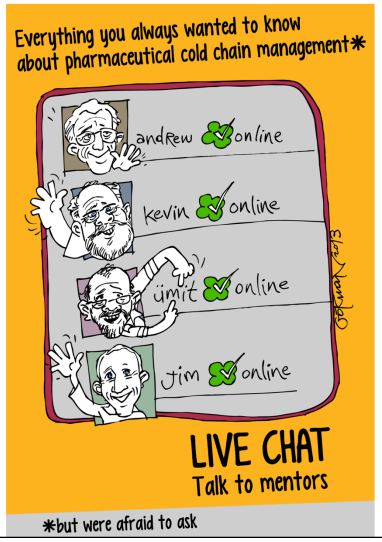
Abstract ← learner tasks → Authentic

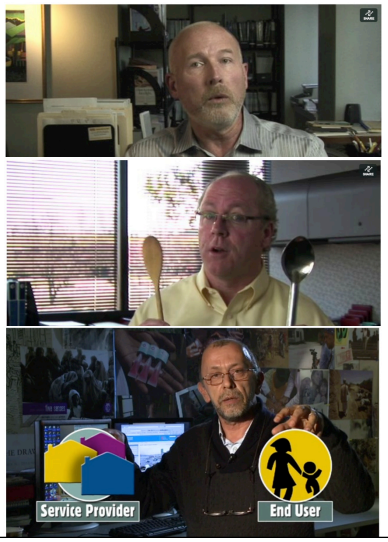
Collaborative construction of knowledge



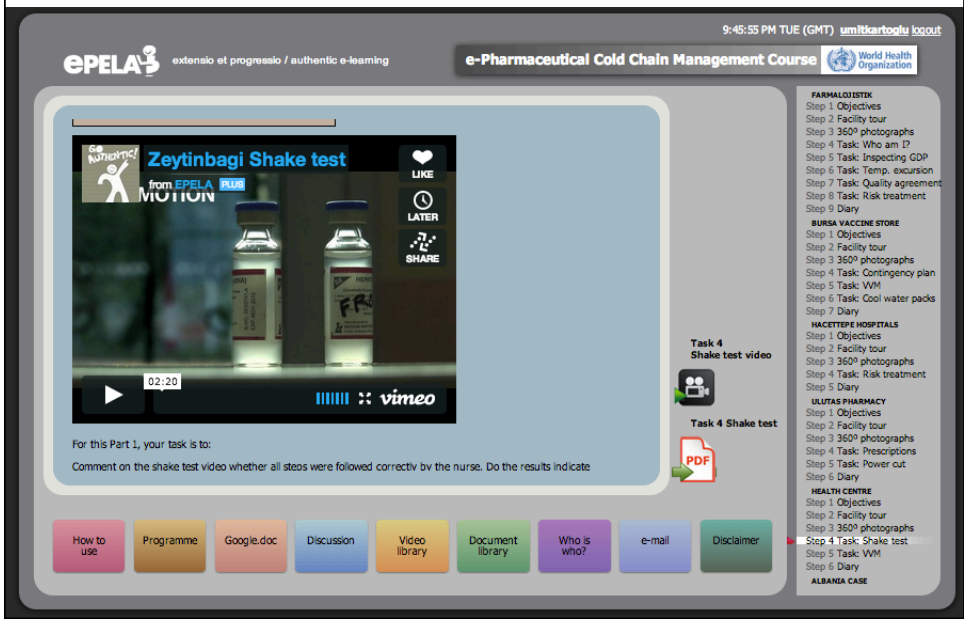
Trainer ← instructor roles → Mentor/facilitator

Access to expert performances





Specific skills ← focus of assessment → Mental models



Learning environment alignment

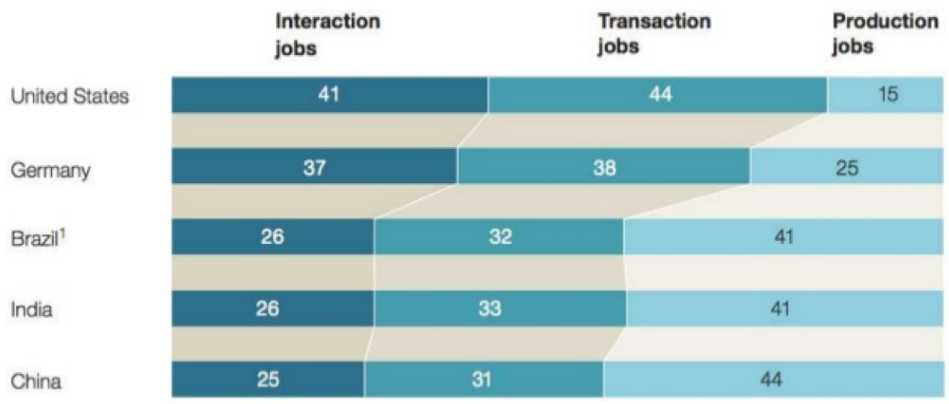
Low order, discrete	learning objectives	High order, robust
One right answer	content	Multiple perspectives
Instructional	instructional design	Experiential
Abstract	learner tasks	Authentic
Trainer	facilitator roles	Mentor/facilitator
Pre-packaged tutorials	technology roles	Authentic simulations
Discrete knowledge	assessment	Mental models

The emotional ending – with real tears – yet to be achieved

Authentic tasks and collaborative work are the keys to effective online learning.

- Focuses on 21st Century outcomes
- Enables intergenerational learning
- Has potential for real world impact

Interaction-based work represents a significant proportion of jobs in developed and emerging markets alike.



[1]Figures do not sum to 100%, because of rounding.

McKinsey Quarterly, 2012

It's the task that matters most!

http://authenticlearning.info/AuthenticLearning/Home.html

Two Rationales for online learning

- Increase access for those who would otherwise not have it
- Increase the quality and impact of teaching and learning

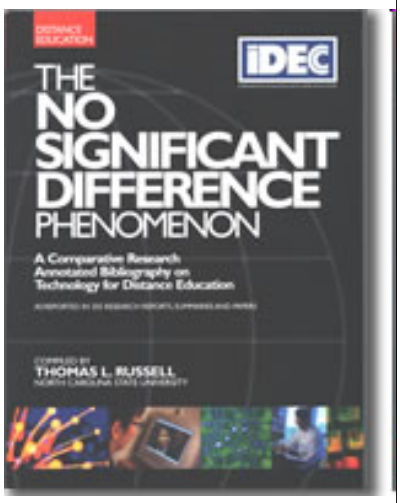
C

F

The Future of University Teaching?

The Future of University Learning?

- 1928-2008
- distance delivery modes from correspondence schools, radio, television, video, and now e-learning
- when the course materials and teaching methodology are held constant, there are *no significant differences* (NSD) in learner outcomes



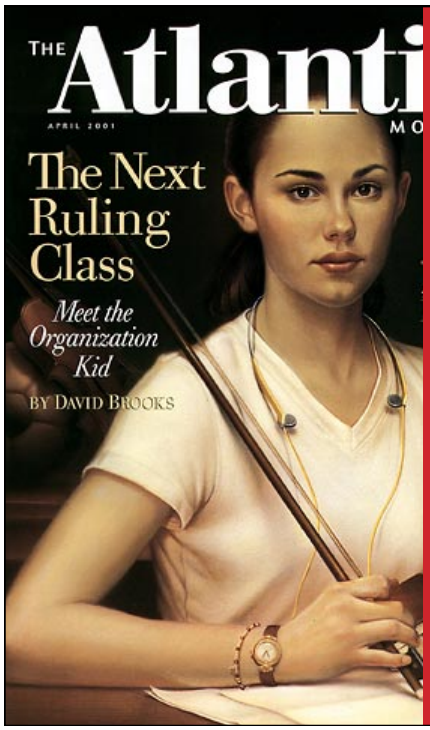
http://www.nosignificantdifference.org/

Stop Focusing Research on Things

- Learning Analytics
- Mobile Learning
- Online Learning
- 3D Printing
- Games and Gamification
- Wearable Technology
- The Internet of Things
- Machine Learning
- Virtual Assistants
- Immersive Learning

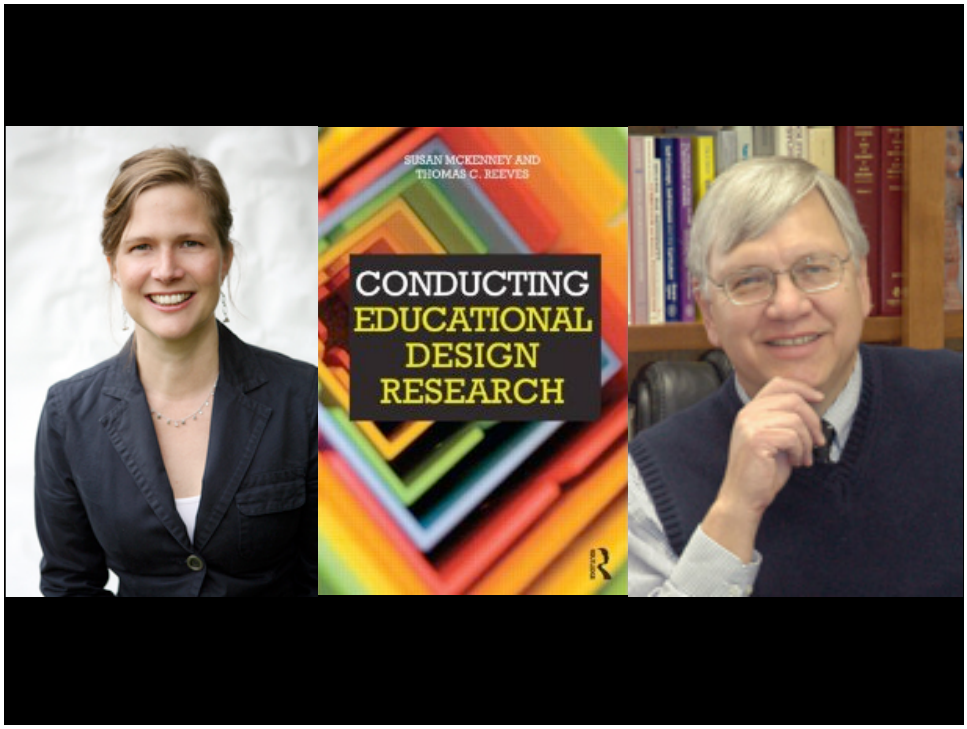
Start Focusing Research on Problems

- Ineffective education
- Increasing poverty
- Child abuse
- Crime
- Lack of literacy
- Poor motivation
- Hopelessness
- Lack of engagement
- Racism, Sexism

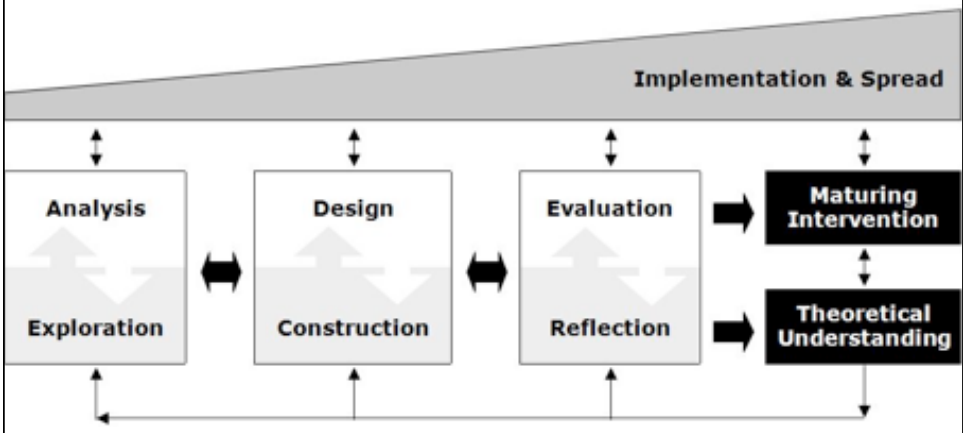


Educational Design Research Approach:

- Working closely with academic staff, define an important pedagogical outcome and create a prototype learning environment informed by theory.
- Emphasize content and pedagogy rather than just technology.
- Give special attention to supporting human interactions.
- Test, refine, and retest learning environments until outcome is reached. Refine theory simultaneously.


SUSAN MCKENNEY AND
THOMAS C. REEVES
CONDUCTING
EDUCATIONAL
DESIGN
RESEARCH

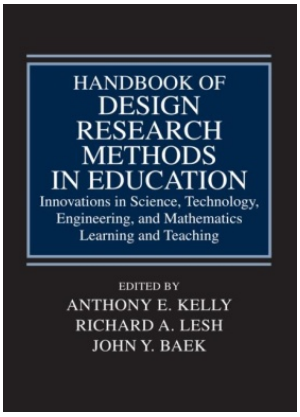
Educational Design Research

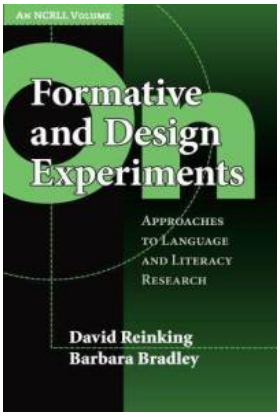


(McKenney & Reeves, 2012)

EDR Resources

http://dbrxroads.coe.uga.edu/





- NetGen students require increased motivation to learn.
- Online learning works best when tasks are authentic!
- Research must focus on problems, not things.

Change begins with you.

Thank You!

Professor Emeritus Tom Reeves
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http://www.evaluateitnow.com