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
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
Why Today's Young Americans
Are More Confident, Assertive, Entitled—and More Miserable—Than Ever Before
Open Learning Requires Open Minds

Dave King

WE ARE STUDENTS NOT CUSTOMERS
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.”

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

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
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

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

Affective Domain
- Characterization by Value Set
- Organization
- Valuing
- Responding
- Receiving

What we say we value
What we teach and assess
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

- Inspire
- Convince others
- Persevere
- Become engaged
- Get involved
- Show Interest
Orexis: (Greek) Striving; desire; the conative aspect of mind

Aristotle
Cognitive – Affective – Conative

- To know
- Thinking
- Thought
- Epistemology
- Knowing

- To desire
- Feeling
- Emotion
- Esthetics
- Caring

- To do
- Willing
- Volition
- Ethics
- 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.
• Work expectations for students:
  – 10-15 hrs in class
  – 25-30 hrs studying

• 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.
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).

The iPad Mini Could Spur an Education Revolution
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.
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.


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**Case Study**

Converting an Experiential Learning Course into an Online Learning Environment
DAY 3
4th June, Wednesday

08.30 - 08.45 Warm up - 30 min
08.45 - 09.25 Programme in the Day
22 - 26 Napier University
Dunlop Store
10.30 - Departure from Ayrshire
 Tours for Group Work - Discussions/ Presentations
15.30 - 17.00 Ayrshire Route
Model of Instruction: Experiential and social learning theories

Concrete experience

Active experimentation

Reflective observation

Abstract conceptualization


Design Team in Antalya, Turkey
### Extensio et Progressio

**e-Pharmaceutical Cold Chain Management Course**


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**Dr. Ümit Kartoglu**  
**World Health Organization**

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#### Objectives

<table>
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<tr>
<th>Knowledge dimensions</th>
<th>Cognitive process dimensions</th>
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<td></td>
<td>Remembering</td>
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<tr>
<td>Factual knowledge</td>
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<td>Procedural knowledge</td>
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<td>Metacognitive knowledge</td>
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**Learning objectives**

- Low order, discrete
- High order, robust
One right answer

nature of content

Multiple perspectives

Direct instruction

model of instruction

Experiential learning

One right answer

nature of content

Multiple perspectives

Direct instruction

model of instruction

Experiential learning

**FARMALΟΓΙΣΤΙΚ – TASK (individual)**

Analyzing a temperature excursion

Although 1.2 days are allocated to complete the assignment, the actual amount of time required is estimated at around 2 hours.

You are the Logistics Manager of the Farmakopoi. Your responsibilities are general encompassing organization of the handling and distribution of goods. In particular, you must ensure that the right products are delivered to the right location on time and at a good cost. More specifically, your main responsibilities can be summarized as follows:

- Monitoring the quality, quantity, cost and efficiency of the movement and storage of goods
- Coordinating and controlling the entire flow and associated information systems
- Ensuring the timely delivery of products
- Storing and managing staff resources according to increasing needs
- Handling and managing with customers and suppliers
- Developing business by gaining new contracts, solving logistical problems and producing new solutions.

Farmakopoi sent off 750 packages of insulin to 231, Athens based containers to Star Pharmacy Store in Larnia on 1 February 2011. The containers were 17 containers, each containing 60 packages of insulin, all packed correctly following the detailed operating procedure (DOP) for packing. Each container had the identification code 6001 and the date 1 February 2011.

Due to the high temperature in Athens, the containers were exposed to temperatures above 30°C for 12 hours. The containers arrived at the pharmacy at 10.30 am. The temperature logger showed an alarm in container 41. As per the DOP, products from this container were put on hold at Star Pharmacy Store pending the analysis of the temperature monitoring data.

The head pharmacist from Star Pharmacy Store called you to report on the alarm. He said that at the 13.30 Tag
Abstract

Collaborative construction of knowledge

Authentic

learner tasks

Access to expert performances

Trainer

Mentor/facilitator

instructor roles

Everything you always wanted to know about pharmaceutical cold chain management.
Specific skills

focus of assessment

Mental models

Learning environment alignment

Low order, discrete
One right answer
Instructional
Abstract
Trainer
Pre-packaged tutorials
Discrete knowledge

High order, robust
Multiple perspectives
Experiential
Authentic
Mentor/facilitator
Authentic simulations
Mental models

learning objectives

content

instructional design

learner tasks
facilitator roles
technology roles
assessment
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.

<table>
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<th>% of workforce</th>
<th>Interaction jobs</th>
<th>Transaction jobs</th>
<th>Production jobs</th>
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<td>41</td>
<td>44</td>
<td>15</td>
</tr>
<tr>
<td>Germany</td>
<td>37</td>
<td>38</td>
<td>25</td>
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<tr>
<td>Brazil¹</td>
<td>26</td>
<td>32</td>
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<td>India</td>
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<tr>
<td>China</td>
<td>25</td>
<td>31</td>
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¹Figures 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

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.
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
The University of Georgia
Instructional Technology
325C Aderhold Hall
Athens, GA
30602-7144 USA
treeves@uga.edu
http://www.evaluateitnow.com