Competence for the Unknown Future

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ASEM Conference, Copenhagen, Denmark

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<th>Wide range of learning theories</th>
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Diversity in competence theories
Competence is more popular than ever
CBE more popular than ever

What is competency-based education?

https://www.youtube.com/watch?v=RckLD9A0pqc

Obama Mentions SNHU and Competency Based Education

https://www.youtube.com/watch?v=WjNYElRzRtI

https://www.youtube.com/watch?v=X_EbseBknZA

https://www.youtube.com/watch?v=L3H-och9Hfc
China: Improving Technical and Vocational Education to Meet the Demand for High-Skilled Workers

September 14, 2015

At technical/vocational schools in China, curriculums and training methods are outdated and barely keep pace with market needs. A project helps bring changes.

The project has benefited more than 9,000 students, as well as school teachers and administrators.

China
East Asia and Pacific
Education

RELATED PROJECT
Guangdong Technical and Vocational Education and Training Project
NATIONAL CURRICULUM WORKSHOP ON COMPETENCE BASED MSC PROGRAM IN HORTICULTURE

JUCAYM JULY 26, 2008
In Collaboration with AATA ENERGY NIG. LTD.

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Competence based Curriculum

The Ministry of Education of Rwanda through Rwanda Education Board is honoured to provide all beneficiaries with the new competence based curriculum. It serves as an official document and guide to competency based teaching and learning, and also ensures that there is consistency and coherence in the delivery of education across all levels of general education in Rwandan schools.

Syllabuses

- Inyobabarezi ku Nteganyanyigisho y’Uburezi bw’Inshuve
- Inyandiko ivuguruye ikubiyemo amabwiriza ajanye n’ishiyirwamubikorwa integanyanyigisho

- Pre-Primary
- Lower-Primary
- Upper-Primary
- Lower-Secondary
- Upper-Secondary

- List of Subjects and A Level Combinations
- Curriculum Framework
- Summary of Curriculum Framework
German Chambers of Commerce project in India

VETnet Pilot Project
Pune, March - May 2015

German Chambers worldwide network (AHK) for cooperative, work-based Vocational Education & Training
Bangladesh, 2012

Implementing Competency-Based Training (CBT) in Bangladesh

CONCEPT DESCRIPTION
Mexico, 2015
European e-Competence Framework 3.0

A common European Framework for ICT Professionals in all Industry sectors
Bartram – The great eight Competency Framework (2005)

- Leading and Deciding
- Supporting and Co-operating
- Interacting and Presenting
- Analysing and Interpreting
- Creating and Conceptualising
- Organising and Executing
- Adapting and Coping
- Enterprising and Performing

Competence in Medicine - Cornell Press, 2012
CanMeds Competency Framework, 2015

http://canmeds.royalcollege.ca/en/framework
Domain-specific competence frameworks

- Interdisciplinarity in higher education - Spelt et al (2009)
- Sustainable development - Wesselink and Wals (2011)
- Argumentation competence - Noroozi (2013)
- Multicultural cooperation - Popov et al (2013)
- Competence of beginning elementary school teachers - Alake-Tuenter (2014)
- Competence development in practical training – Khaled (2014)
Growing evidence for effects of CBT

Application of Competency-Based Education in Laparoscopic Training

Dongbo Xue, MD, Hong Bo, MD, Weihui Zhang, MD, Song Zhao, MD, Xianzhi Meng, MD, and Donghua Zhang, MD

Abstract

Background and Objectives:

To induce competency-based education/developing a curriculum in the training of postgraduate students in laparoscopic surgery.
Nevertheless ... the competence concept is often used in a negative way.
James Konrad (a music critic in the 1960s): It’s a shame about Big Brother and the Holding Company, it really is. Their lead singer, Janis Joplin, is the most important female vocalist since Aretha Franklin, but the musicians in the band are only slightly better than competent, and can’t begin to come up to her level.
“Philadelphia” (1993) - Beckett against (Bob) Wheeler

- WHEELER (Employer) Andrew (Beckett) brought AIDS into our offices, into our men's room. He brought AIDS to our annual goddamn family picnic ...

- SEIDMAN (Co-worker) A jury might decide that Andy has a case.

- WHEELER Wait a minute. The man was fired for incompetence, not because he has AIDS. You didn't know he was sick, did you, Bob?

- KENTON (Co-worker) Holy Shit. Did you, Bob?

- BELINDA CONINE (Attorney) Your Honor, Mr. Beckett's incompetence nearly sabotaged a 350 million dollar suit.
The new Q in Skyfall – James Bond (2012)

Q: 007. I'm your new Quartermaster.
Bond: You must be joking.
Q: Why, because I'm not wearing a lab coat?
Bond: Because you still have spots.
Q: My complexion is hardly relevant.
Bond: Your competence is.
Q: Age is no guarantee of efficiency.
Bond: And youth is no guarantee of innovation.
Q: I'll hazard I can do more damage on my laptop sitting in my pajamas before my first cup of Earl Grey than you can do in a year in the field.
Where does the competence concept come from?
Competence is used a lot in daily language...

- An aircraft type license
- An approved medical officer
- An accredited laboratory
- A competent authority
- A licensed teacher
- A qualified person
Old roots of the word competence

- **Sanskrit:** समर्थ (samartha)
- **Chinese:** 作证能力 (zuòzhèngnénglì)
- **Greek:** ικανότης - (Ikanotis) the quality of being ikanos (capable), to have the ability to achieve something; skill (Plato, Lysis 215A; 380 BCE)
- **Latin:** competens; competentia
- **English:** competence; competent
- **French:** compétence compétent
- **Dutch:** 1504 CE – competentie - competent
Competence … old wine in new bottles?

Code of Hammurabi, King of Babylon, 1792-1750 BCE

‘… Hammurabi, le roi compétent … ‘

Épilogue

« Telles sont les décisions de justice que Hammurabi, le roi compétent, a établies pour engager le pays conformément à la vérité et à l’ordre équitable [...] Que l’homme injustement traité, qui est impliqué dans une affaire, vienne devant l’image de moi-même, le roi de justice, et se fasse lire ma stèle écrite, qu’il entende ainsi mes précieuses ordonnances ; que ma stèle lui indique son affaire, qu’il voit son cas, que son cœur s’allège [...] Je suis Hammurabi, le roi de justice, à qui Shamash a octroyé la vérité. »
Institutional Use of Competence

- Rychen & Salganik, 2003 (OECD)
  - DeSoCo-project
- European Commission, 2005
- European Social Partners, 2006
- EQF - NQFs
- 2012 EU Assessment of Key Competences
- CEN (2014). European e-Competence framework 3.0
- 2015 Riga Conclusions - Key Competence as policy option
A HISTORY OF AGRICULTURAL EDUCATION IN THE UNITED STATES
1785–1925

BY

ALFRED CHARLES TRUE
Specialist in State Relations Work, United States
Department of Agriculture

UNITED STATES DEPARTMENT OF AGRICULTURE
MISCELLANEOUS PUBLICATION No. 36
WASHINGTON, D.C. ISSUED JULY, 1929

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON, 1929

"After more than 40 years of distinguished service in the United States Department of Agriculture, Doctor True died in Washington, D.C., on April 23. As Director of the Office of Experiment Station in the period 1897-1939, Doctor True made significant contributions to the development of agricultural education and research in the United States. During the period from 1925 to the time of his death, Doctor True devoted much of his time to the preparation of histories of agricultural education, agricultural extension work, and agricultural research..."
The democratic ideal
Everybody should develop competence
To choose and pursue a career
Competence as academic construct
An alternative for motivation psychology of Freud (unconscious sexual drives) and Hull (drive reduction)

Children and adults are motivated to become competent in what they do

Competence = the ability to interact effectively with the environment

The ‘new’ first publications on competence


- Schalock and Hale 1968: competency-based teacher education, based on ideas about
  - performance-based teacher education
  - behaviour modification
  - direct behaviour training
  - individualized instruction
  - microteaching
  - modularization and mastery-learning
- Joyce (1971) critically reviewed CBTE
- Schmieder (1973) reviewed CBTE
Noam Chomsky, 1965

- Competence is a the underlying linguistic ability to create and understand sentences, including sentences never heard before.
- Performance is the linguistic output.
- Knowing rules does not automatically guarantee being able to speak correctly.

Cambridge: MIT Press.
David C. McClelland, 1973

- Limited prognostic validity of intelligence tests and school grades
- Testing what people actually can do shows a better result
- Competencies should try to measure clusters of life outcomes
- Competencies should be identified by what superior performers do

Further theory and research


Competence framework Habermas (1984)

- Cognitive competence
- Linguistic competence
- Interactive competence
Towards an overview and structure of the field of competence
There have been many reviews/critiques:

- Domas and Tiedeman, 1950
- Houston, 1974
- Grant et al, 1979
- Ellström, 1997
- Lum, 1999
- Rothwell and Lindholm, 1999
- Argüelles & Gonczi, 2000
- Westera, 2001
- Jones and Voorhees, 2002
- Hager, 2004
- Hyland, 2006
- Mulder, Weigel and Collins, 2007
- Smith, 2010
- Winterton, 2011
- Mulder, 2014
Comprehensive Review of CbV&PE, 2017

- 50 chapters
- ≥ 85 authors
- Covering all continents
- Theories
- Policy developments
- CBE systems features
- Competence domains
- Synthesis
Two Meanings of Competence

- **Capability to perform**
  - Proficiency, mastery, ability

- **Right to perform**
  - Legal authority, licensure, certification
  - Institutional, organizational, cultural or regulated power, approval or assignment to act, decide, (dis)approve or regulate
Three groups of competence theories

1. Functional behaviourism  
   Context: Training  
   Pitfalls: Over-specification

2. Integrated occupationalism  
   Context: Education  
   Pitfalls: Performatism

3. Situated professionalism  
   Context: Development  
   Pitfalls: Over-generalisation
Three types of competencies

1.0 – for specific activities

2.0 – for known jobs

3.0 – for the unknown future

The future is an unknown, but a somewhat predictable unknown. To look to the future we must first look back upon the past. That is where the seeds of the future were planted. I never think of the future. It comes soon enough.

(Albert Einstein)
Competence 3.0 for the Unknown Future
Flowers
These traders need professional competence

- **Knowledge**
  - product quality
  - market

- **Skills**
  - multi-tasking
  - information processing

- **Attitudes**
  - stress-tolerance
  - feeling for sales
  - open for change

My understanding of competence

1. integrated capabilities
2. consisting of knowledge, skills, and attitude clusters
3. needed in a certain profession, occupation, job, role, organisation, or task situation
4. which are conditional for sustainable effective performance, including
   • problem solving
   • realizing innovation
   • creating transformation
Competencies for the future

- Key competencies
- 21st Century Skills
- Essential learning outcomes
- Survival skills
- Critical competencies
- Global competency
- Competence 3.0
DeSeCo Model of Key Competencies, 2003

- Interacting in heterogeneous groups
  - relating well to others
  - cooperating
  - managing and resolving conflict

- Acting autonomously
  - acting within the big picture or the larger context
  - forming and conducting life plans and personal projects
  - defending and asserting one’s rights, interests, limits, and needs

- Using tools interactively
  - using language, symbols, and text interactively
  - using knowledge and information interactively
  - using technology interactively

Key competences (2006 European Union)

1. Communication in the mother tongue
2. Communication in foreign languages
3. Mathematical competence and basic competences in science and technology
4. Digital competence
5. Learning to learn
6. Social and civic competences
7. Sense of initiative and entrepreneurship
8. Cultural awareness and expression

21st Century Skills (NCREL/Metiri Group, 2003)

Source: http://pict.sdsu.edu/engauge21st.pdf
The Essential Learning Outcomes – AAUC, 2008

Beginning in school, and continuing at successively higher levels across their college studies, students should prepare for twenty-first-century challenges by gaining:

Knowledge of Human Cultures and the Physical and Natural World
- Through study in the sciences and mathematics, social sciences, humanities, histories, languages, and the arts
  - Focused by engagement with big questions, both contemporary and enduring

Intellectual and Practical Skills, including
- Inquiry and analysis
- Critical and creative thinking
- Written and oral communication
- Quantitative literacy
- Information literacy
- Teamwork and problem solving
  - Practiced extensively, across the curriculum, in the context of progressively more challenging problems, projects, and standards for performance

Personal and Social Responsibility, including
- Civic knowledge and engagement—local and global
- Intercultural knowledge and competence
- Ethical reasoning and action
- Foundations and skills for lifelong learning
  - Anchored through active involvement with diverse communities and real-world challenges

Integrative Learning, including
- Synthesis and advanced accomplishment across general and specialized studies
  - Demonstrated through the application of knowledge, skills, and responsibilities to new settings and complex problems

Source: https://secure.aacu.org/AACU/PDF/GlobalCentury_ExecSum_3.pdf
Wagner - Seven Survival Skills for today’s students, 2010

1. Critical Thinking and Problem-Solving
2. Collaboration across Networks and Leading by Influence
3. Agility and Adaptability
4. Initiative and Entrepreneurialism
5. Effective Oral and Written Communication
6. Accessing and Analyzing Information
7. Curiosity and Imagination

Critical Competencies for Leadership in the Future
(Vora, 2015)

Source: http://qaspire.com/2016/01/06/leadership-skills-for-the-future/
Global competency for an inclusive world
(OECD, 2016)

Competence 3.0 – for unknown future

- Ambiguity handling
- Argumentative reasoning
- Balancing interests
- Complex problem solving
- Computational thinking
- Creativity - creation
- Entrepreneurship
- Global competence

https://082kshiprachowdharyim21.files.wordpress.com/2014/07/transformational_leadership.gif
Competence 3.0 – for unknown future – Cont’d

- Intuition
- Mindfulness
- Negotiating meaning
- Professional identity
- Resilience
- Sustainability
- Transformation
- Uncertainty handling

http://www.thereachapproach.co.uk/approach/mindfulness-144/
Personal-professional competence

Self-management and career competence

Integrative learning competence

Social-professional competence

Disciplinary and interdisciplinary competence
Personal-professional competence

- Adaptability, flexibility, agility
- Anticipate and create change
- Big picture visioning, global competence
- Civic competence – balancing, defending/asserting rights, interest, limits, needs
- Cultural awareness and expression
- Curiosity, imagination, and creativity
- Emotions handling competence
- Ethical reasoning and action
- Health competence
- Intuition, mindfulness and integrity
- Managing complexity
- Physical competence
- Reflection and self-awareness competence
Social-professional competence

- Clarification competence
- Collaboration in networks
- Creating ecosystems for engagement
- Interactive communication skills
- Managing and resolving conflicts
- Meaning negotiating competence
- Multicultural literacy
- Relating well to others
- Social, interpersonal, cooperation competence
- Teamwork
Self-management and career competence

- Acting autonomously
- Self-regulation competence
- Civic knowledge and engagement
- Life planning competence
- Personal project planning competence
- Responsibility
- Managing for results
- Prioritizing
- Productivity
- Accountability
- Argumentative reasoning
- Resilience and stamina
- Sense of initiative, innovation and entrepreneurialism
- Calculated risk taking competence
- Lifelong learning competence
Disciplinary and interdisciplinary competence

- Critical thinking and complex problem solving
- Financial, economic, business literacy
- Higher order thinking, sound reasoning
- Inquiry and analysis
- Mathematics literacy
- Social sciences and humanities literacy
- Languages literacy
- Arts literacy
- Digital (ICT) literacies
- Media and information literacy
- Reading, writing, numeracy, computational competence
- Science, technology, design and inquiry literacies
- Environmental literacy
Integrative Learning Competence

- Ambiguity and uncertainty handling
- Dealing with vulnerability and ambiguity
- Developmental competence
- Evaluation competence
- Knowledge co-creation competence
- Leadership competence
- Synthesizing competence
- Sustainability competence
- Transformation competence
Summarizing:

- There is a **wide variation** in competence theories
- But the concept is more **popular** than ever
- The competence approach is also **criticized**
- The concept has a long history – now **institutionalized**
- Competence-based education concentrates on **known** jobs
- We must concentrate on competence for the **unknown future**
- Research needed into **aligned learning arrangements**
The field of competence studies has grown exponentially. It has gained wide interest in all sectors of education, in various types of organizations, in research and in consultancy. Competence-based education, training and development, competence management and core-competence strategy have been blossoming since the 1960s.
Thanks – Questions?

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- Twitter: @MartinMulder
- YouTube: https://www.youtube.com/watch?v=0hLQTcb-93g
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