



Competence research in vocational and professional education

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Competence is an old concept...

See the Code of Hammurabi, 1792-1750 BCE, which includes the phrase

`... Hammurabi, le roi compétent ...`



as is teaching...



Henry of Germany delivering a lecture to university students in Bologna

but practices have changed...



<https://www.youtube.com/watch?v=EXYzj6qwCCk>



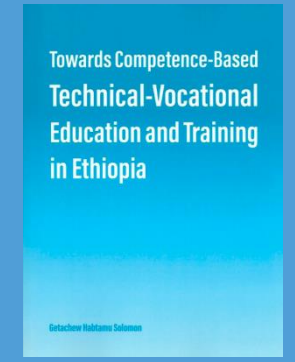
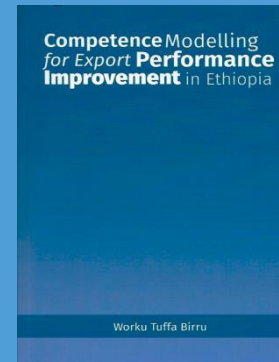
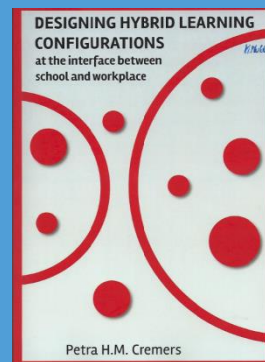
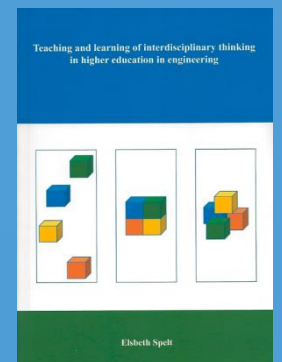
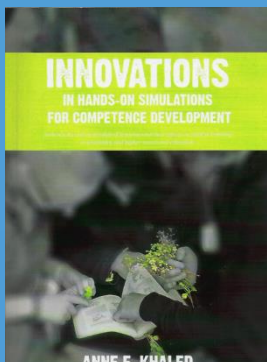
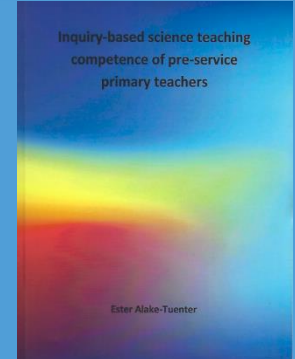
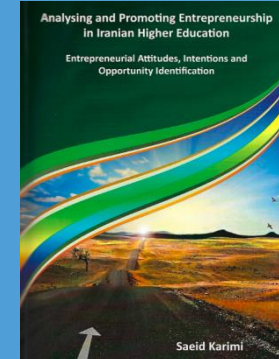
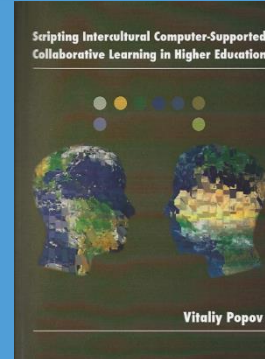
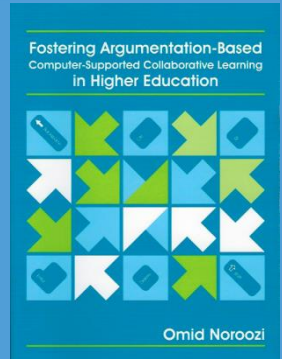
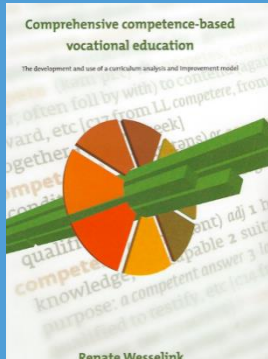
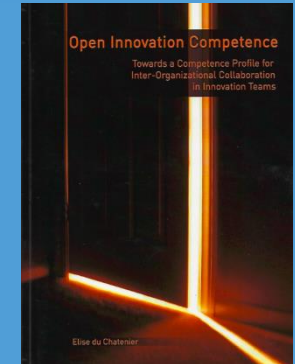
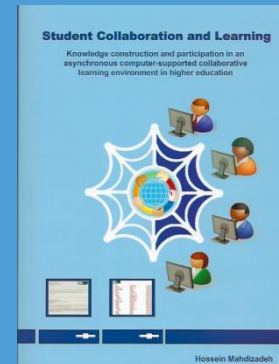
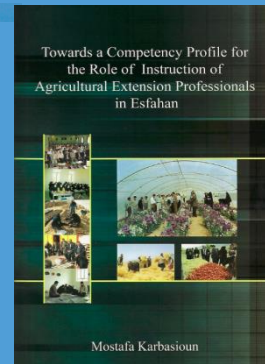
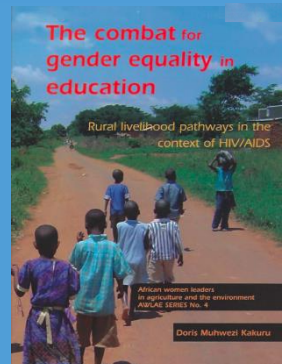
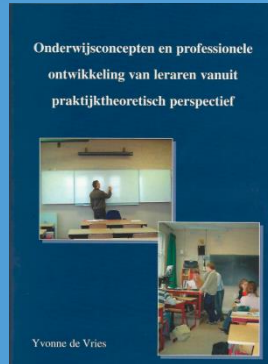
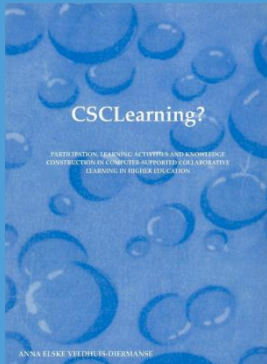
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... and so have education theories.

- Activity theory
- Agency theory
- Alignment and transition theory
- Argumentation-based learning
- Authentic learning theory
- Blended learning theory
- Cognitive apprenticeship theory
- Cognitive load theory
- Communities of practice theory
- **Competence theory**
- Concept-context theory
- Educational effectiveness theory
- Expansion learning theory
- Experiential learning theory
- Flexibility-mobility theory
- Identity development theory
- Learning domain theory
- Personal epistemology theory
- Professional development theory
- Qualification theory
- Self-regulation theory
- Situated cognition theory
- Social learning theory
- Test theory
- Transfer theory
- Workplace learning theory



There is much competence research...



...on many competence themes.

- Argumentation competence (see Noroozi et al)
- Competence assessment (see Gulikers et al)
- Entrepreneurial education and learning (see Lans et al, Karimi et al and Baggen et al)
- Hybridization of VET (Cremers et al)
- Innovation competence (see Du Chatenier et al)
- Intercultural competence development (see Popov et al)
- Interdisciplinarity competence development (see Spelt et al)
- Oral presentation competence (see Van Ginkel et al)
- Training for practical competence (see Khaled et al)
- Regional learning (see Oonk et al)
- Social responsibility competence (see Osagie et al)
- Teaching competence (see Kasule et al and Alake-Tuenter et al)
- Teacher team work and learning (see Bouwmans et al and Zoethout et al)

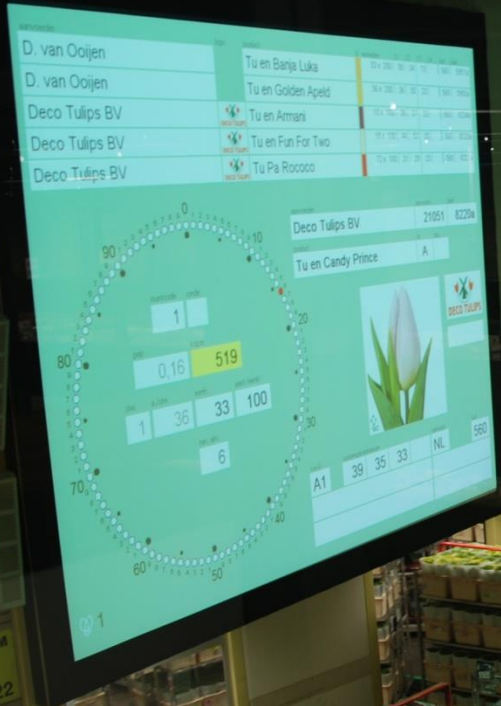




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ALARM
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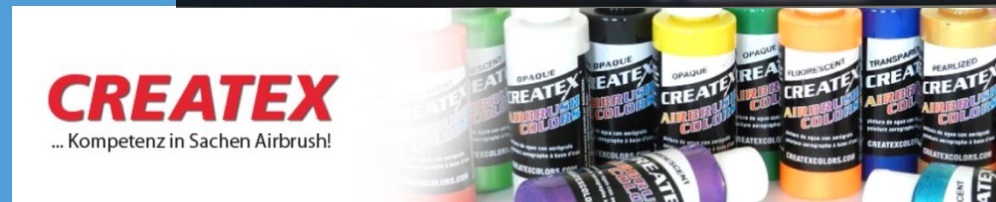
Professional competence is...

- Knowledge
 - product quality
 - market
- Skills
 - multi-tasking
 - information processing
- Attitudes
 - stress-tolerance
 - feeling for sales
 - open for change



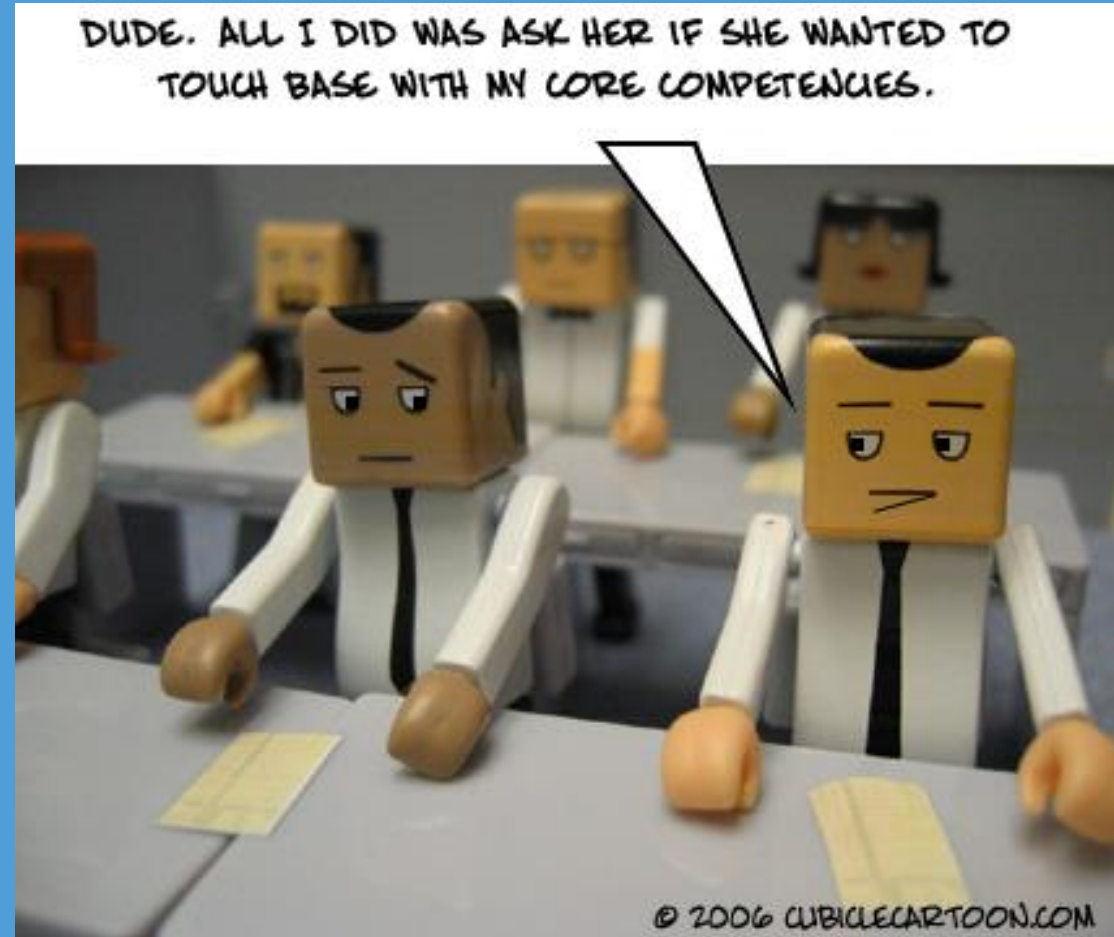
and competencies are...

1. integrated capabilities,
2. consisting of clusters of knowledge, skills, and attitudes,
3. conditional for sustainable effective performance, including
 - problem solving
 - realizing innovation
 - creating transformation,
4. in a certain profession, occupation, job, role, organisation, or situation.



Competence definitions have different dimensions...

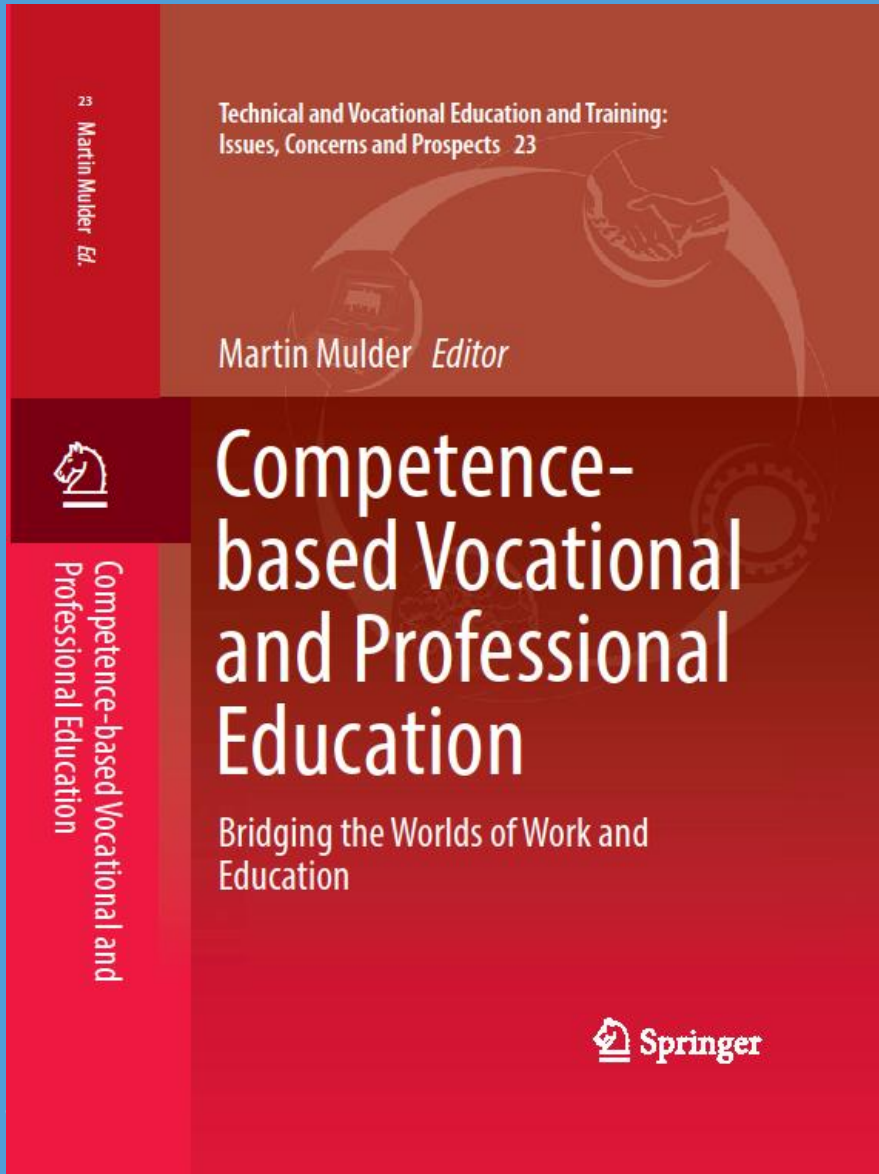
1. centrality
2. contextuality
3. definability
4. developability
5. dynamic nature
6. knowledge-inclusion
7. measurability
8. mastery level
9. performativity
10. transferability



...which shows there is a wide diversity of competence theories and practices.



To create an overview we developed the book CbV&PE (2017)...



- 1142 pages
- 50 chapters
- ≥ 85 authors
- from all continents
- Lead questions-answers
- Theories
- Policy developments
- CBE systems features
- Competence domains
- Synthesis
- Subject index
- Author index

Which describes the current state of competence practice.

- Professional associations – competence frameworks
- Governmental organizations – competencies of teachers
- Testing companies – competence measurement tools
- Consultancy firms – competence dictionaries, advisory services for assessment and development
- Organizations – competence management systems
- Educational institutions – implemented qualifications frameworks in which competencies are integrated.



Recognition of Prior Learning (RPL)

Are you thinking about studying a Vocational Education and Training (VET) course at CDU? If you've ever studied or completed training, you might be entitled to apply for Recognition of Prior Learning (RPL).

Mature systems of CBE should include...

- Competence taxonomies
 - ska levels
- Competence frameworks
 - key + basic competencies
- Competence recognition
 - of prior learning
- Competence acquisition
 - authentic + applied learning
- Competence assessment
 - of, for, as learning
- Competence-based school-HRM
 - learning organization



The screenshot shows the European Commission website for the 'TAXATION AND CUSTOMS UNION'. The page title is 'EU Customs Competency Framework'. It features two main sections: 'Container industry competence standard' and 'Bulkler industry competence standard', both under the 'COMPETENCE MANAGEMENT' category. The website is branded with the 'jamk.fi' logo and includes navigation links for 'Education', 'Services', and 'Research and Development'.

Recognition of Prior Learning

Ensuring Competence through
Authentic Assessment of Learners

Maryellen E. Gusic MD

Professor of Pediatrics

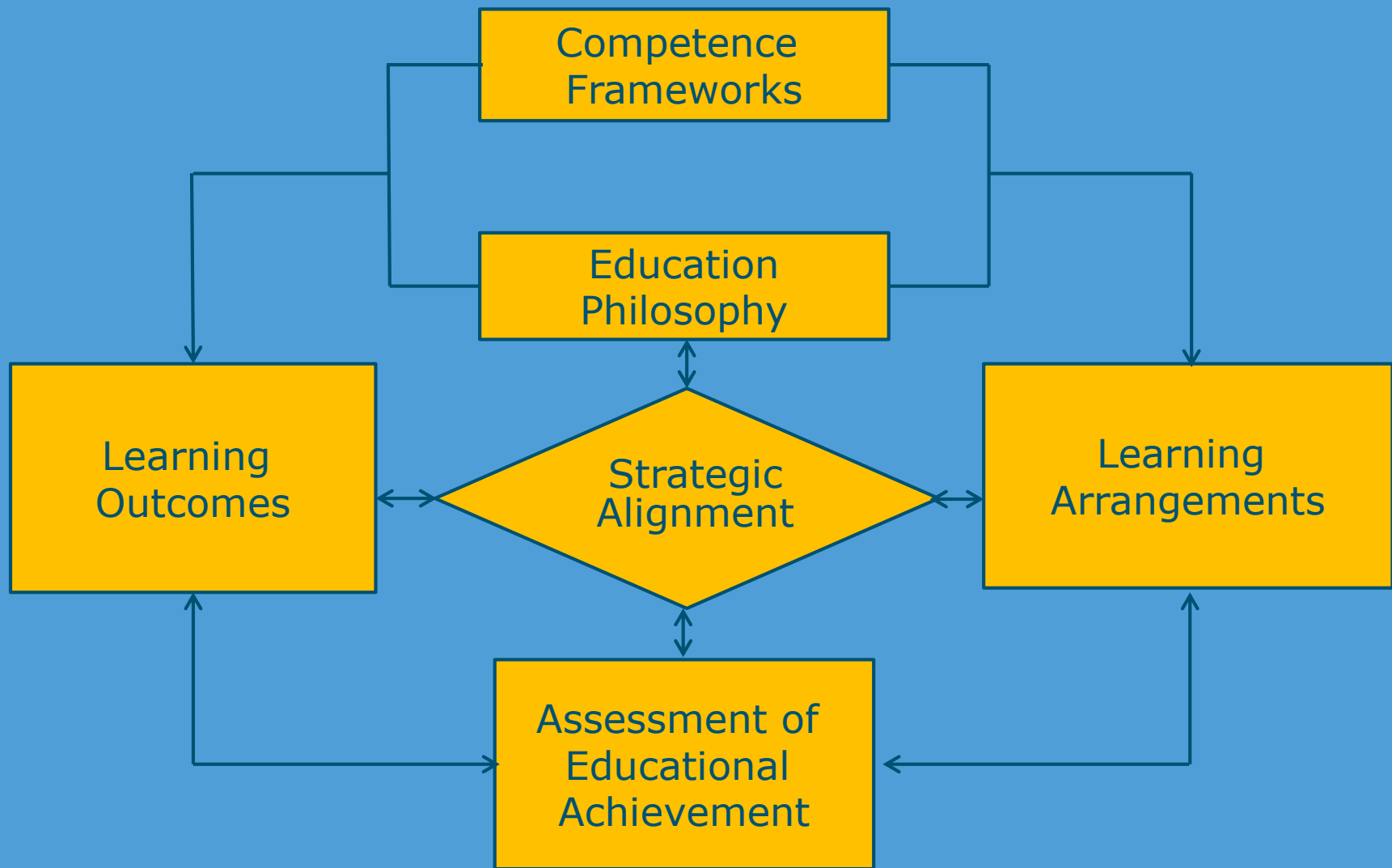
Indiana University School of Medicine

and are related to three groups of competence theories...

	Context	Pitfalls
1. Functional behaviourism	Training	Over-specification
2. Integrated occupationalism	Education	Performatism
3. Situated professionalism	Development	Over-generalisation



and the theory of strategic alignment...



and instructional design theory.

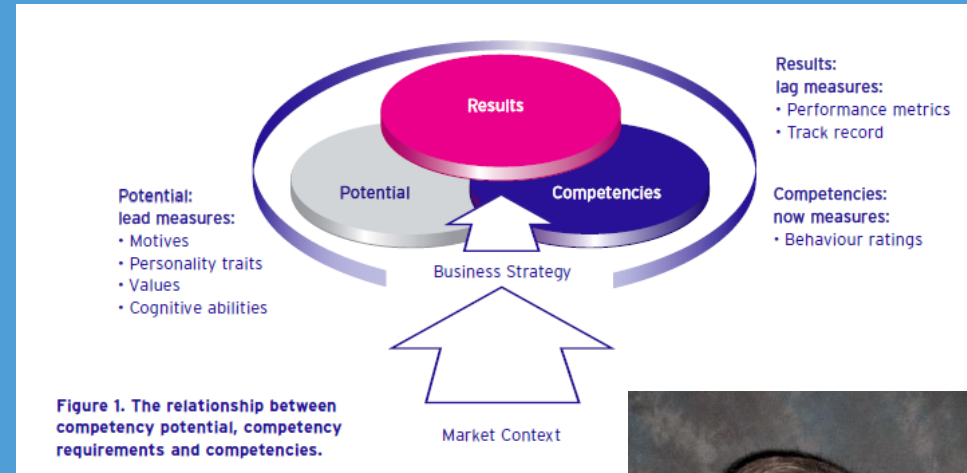
The CLIA-model for educational design (De Corte et al, 2004):

- Competence (objectives of instruction)
- Learning
- Intervention
- Assessment



There are many examples of competence frameworks, from generic...

- 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



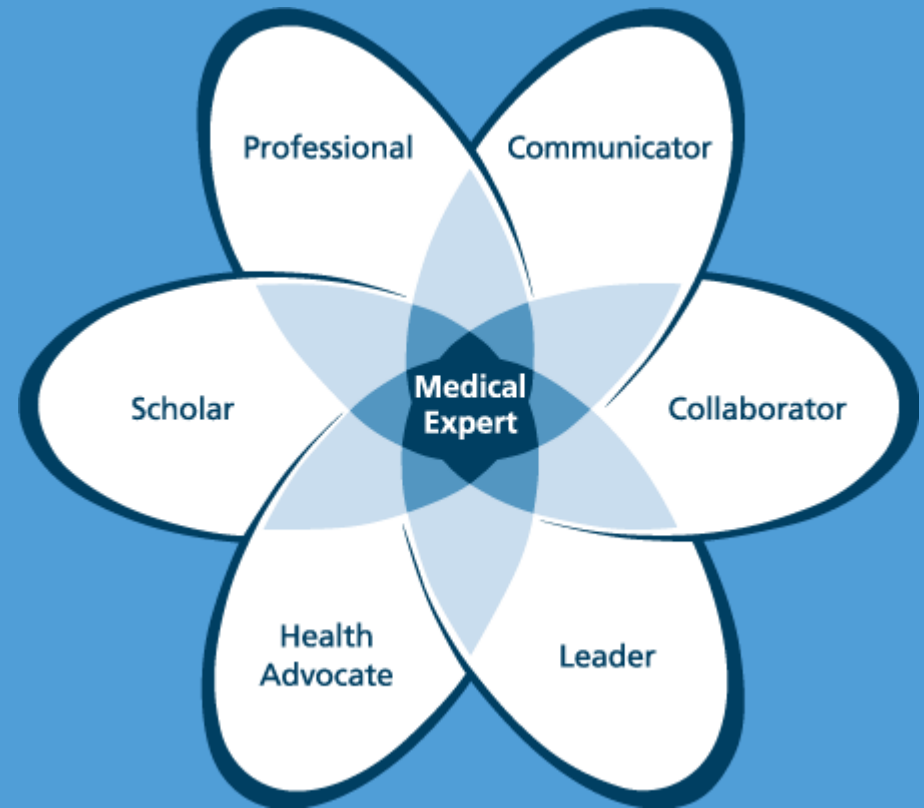
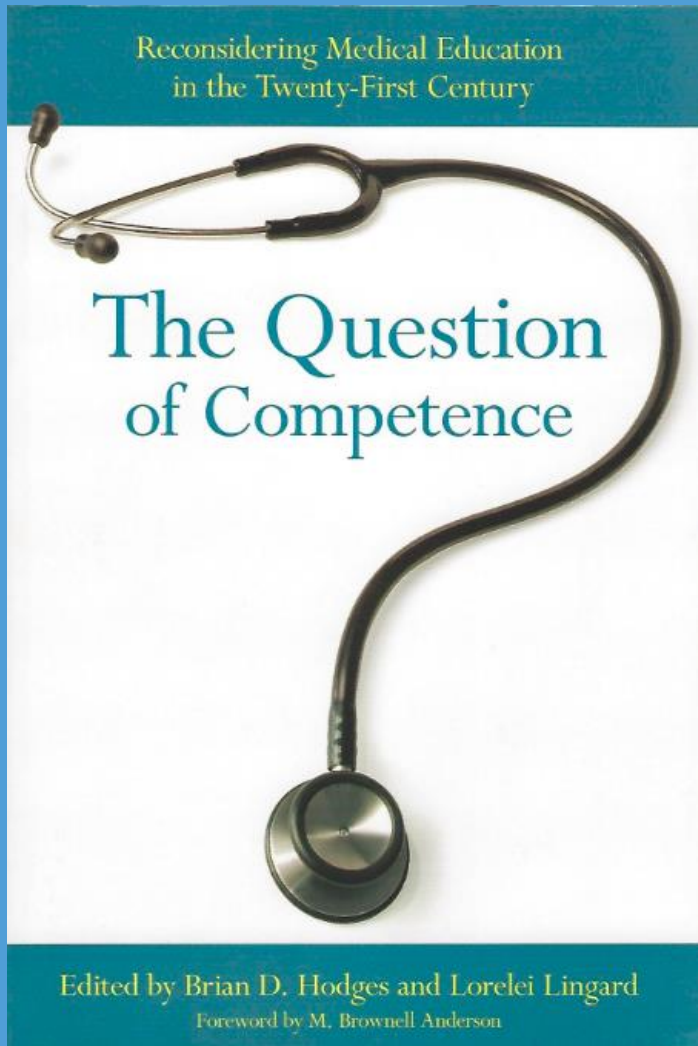
Source: <http://www.shl.com/OurScience/Documents/SHLUniversalCompetencyFramework.pdf>



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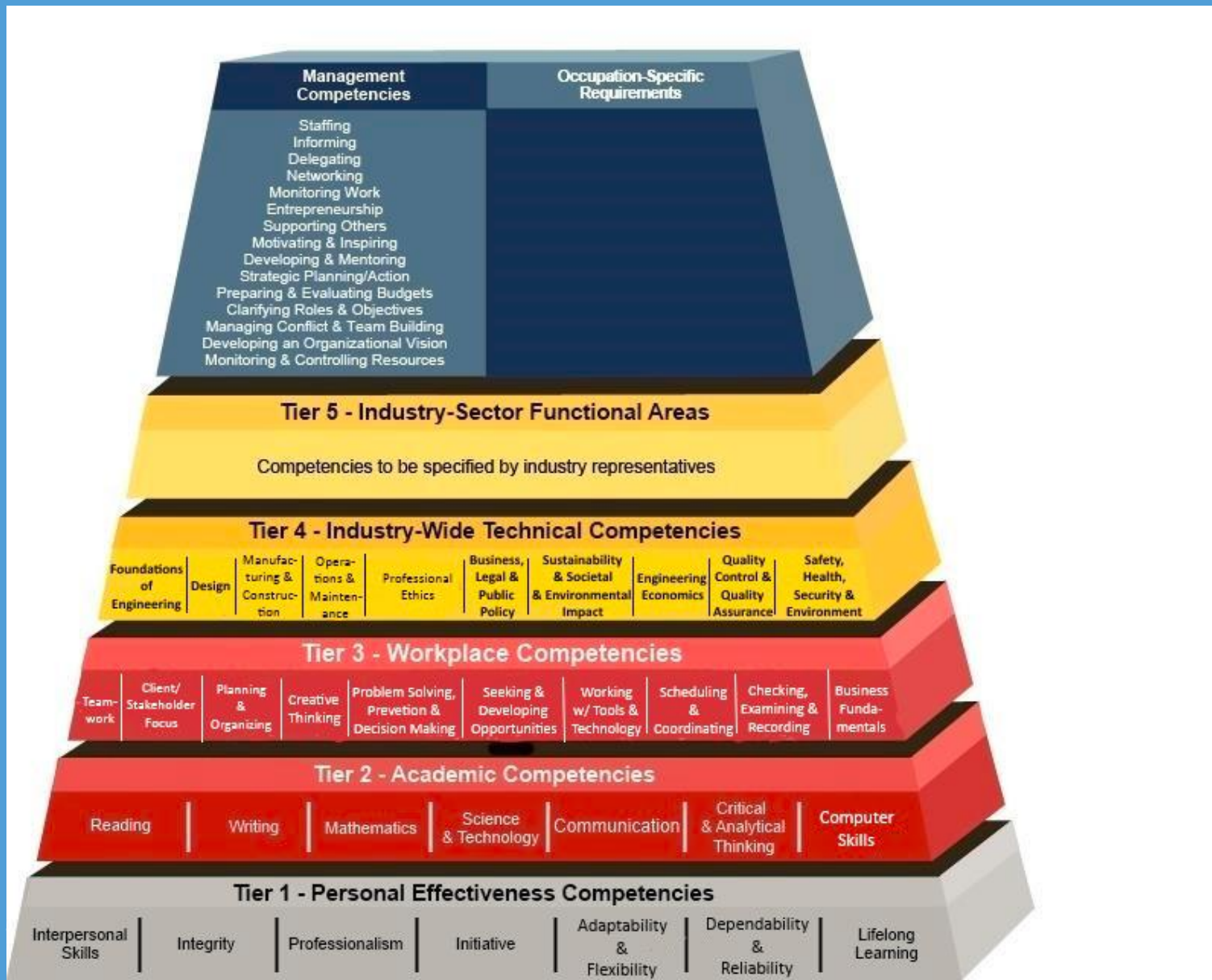
Bartram – The great eight Competency Framework (2005)

to occupation-profession-specific such as in
Medicine...(CanMeds Competency Framework, 2015)



<http://canmeds.royalcollege.ca/en/framework>

and in Engineering (Engineering Competency Model, 2015; www.doleta.gov)



Many projects are running, e.g. in China...



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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.

 **9,000**

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](#)

in India...

(VET project of the German Chambers of Commerce)

VETnet Pilot Project

Pune, March - May 2015



vetnet

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

in Bangladesh (2012)...

Implementing Competency-Based Training (CBT) in Bangladesh

FACT SHEET



International
Labour
Organization



CONCEPT DESCRIPTION

Nigeria...



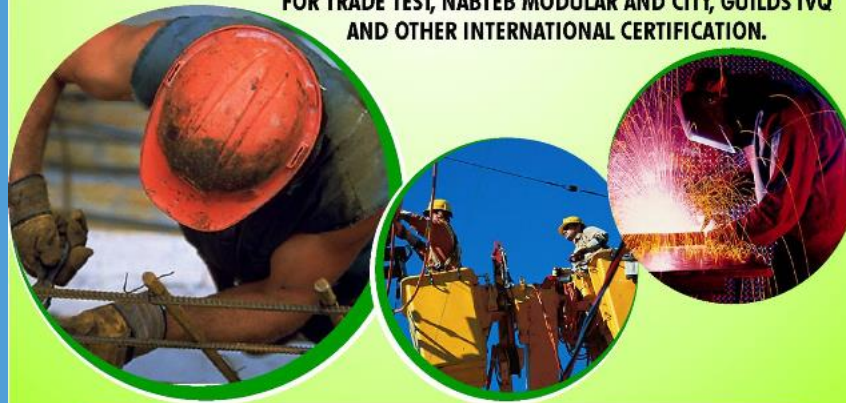
FEDERAL REPUBLIC OF NIGERIA
FEDERAL MINISTRY OF LABOUR AND PRODUCTIVITY
(Skill Development and Certification Department)
SKILL UPGRADING AND VOCATIONAL TRAINING CENTRE
8, Lancaster Road, Opp. Queens College, Onike, Yaba, Lagos.

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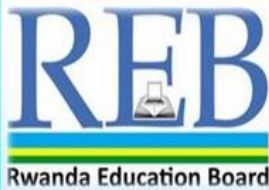


The courses includes:

- MOBILE CRANE OPERATION
- RIGGING AND SIGNAL MAN
- FORKLIFT OPERATION
- SCAFFOLDING
- PORT OPERATION
- 3G/4G WELDING
- FABRICATION TECHNOLOGY
- INDUSTRIAL MACHINING
- DOMESTIC ELECTRICAL INSTALLATION & MAINTENANCE
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TEL: 08023020301, 08182025545, 08140396889
E-MAIL: info@aatalearning.com, aatalearning@gmail.com

and Rwanda (2015)



Competence Based Curriculum

Curriculum for sustainable development



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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

- Inyoborabarezi ku Nteganyanyigisho y'Uburezi bw'Inshuke
- Inyandiko ivuguruye ikubiyemo amabwiriza ajyanye n'ishyirwamubikorwa integanyanyigisho
- Pre-Primary
- Lower-Primary
- Upper-Primary
- Lower-Secondary
- Upper-Secondary
- List of Subjects and A Level Combinations
- Curriculum Framework
- Summary of Curriculum Framework

A Dutch Example: Vocational Training at Drenthe College

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Bekijk onze werelden

- > Bouw & afbouw
- > Media & ICT
- > Proces, AOT & laboratoriumtechniek
- > TT-Instituut (Auto- en motorfietstechniek)
- > Vakschool techniek
- Werktuigbouw, elektrotechniek & installatietechniek (Engineering)



Economie & Dienstverlening



Techniek

Bekijk deze sector >



Zorg & Welzijn



DC Start



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VET Colleges like these in the Netherlands

- Have incorporated CBVE (legal requirement since 2011)
- Competencies are integrated in Qualification Frameworks
- Well aligned with needs of companies
- Include knowledge, skills and professional attitudes
- Students are working in teams
- Gradual increase of responsibility
- Assessment of critical job tasks by certified assessors
- Teachers act as learning coaches or guides



Roles of stakeholders in CB-VET



An example from Italy: Associazione Cometa, Como (2017)



and its decoration department...



of which products are being sold, e.g. to Castadiva...



... and in which NEET students are also included.



An example from higher education: Wageningen University...



Which adopted a CBE approach in which...

- Key competencies were defined
- Competence-course matrices were developed
- Overlap and white spots were identified
- Learning lines were drafted
- Learning outcomes were formulated
- Revised course descriptions were included in Study Handbook
- Assessment Strategies were defined
- Course Guides were adjusted
- Internal consistency is checked by Exam Committee
- Special attention is given for Academic Consultancy Training





'Academic Consultancy Training' – MSc student projects



Another example from higher education: CBL in Western Governors University, USA



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There is a Competency-Based Education Network

CBE DESIGN PLANNER

CBEXCHANGE 2017

COMPETENCY-BASED
EDUCATION NETWORK

A National Consortium for Designing, Developing
and Scaling New Models for Student Learning



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the
Network

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Examples from our own work in East-Africa on Competence-Based Horticulture Education and Training...

- Mountains of the Moon University, Fortportal, Uganda
- Bukalasa Agricultural College, Wobulenzi, Uganda
- JUCAVM, Jimma, Ethiopia
- JKUAT, KARI, HPTC, Nairobi, Kenya



in which we conducted the following activities:

- Labour market analysis
- Analysis of task inventories of workers
- Development of occupational profiles
- Development of competence profiles
- Curriculum development
- Development of teaching guides
- Development of learning materials
- Analysis of labour market entry of graduates
- Review of stakeholders' perceptions of training programs



In many practices competence levels 1 and 2 are being used...

1.0 – for specific tasks

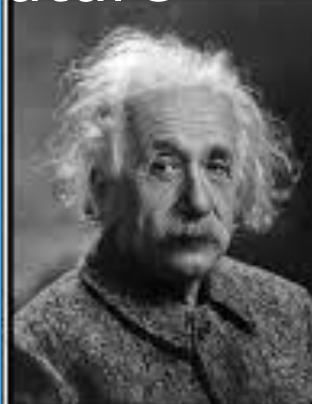
Outdated curriculum

2.0 – for known jobs

Replication logic

3.0 – for the unknown future

Transformative learning



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)



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...whereas future-oriented competencies need to be addressed more!



To sum up: CBE is more popular than ever,
even in politics...



You Tube^{NL}

Obama Mentions SNHU and Competency Based
Education



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<https://www.youtube.com/watch?v=WjNYEIRzRtI>

in movies...



Skyfall (2012): James Bond fears his new Quartermaster is incompetent



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and in pop-music ... Compétence by Sira Kouyaté (2017)

- <https://www.youtube.com/watch?v=7hZGyGpY3V0>



COMPETENCE



Conclusions

- 'Competence' has a long history – and is now institutionalized
- Worldwide: competence-based practices are more popular than ever
- There is a wide variation in competence theories and practices
- Many competence-based education initiatives concentrate on known tasks and present jobs
- We must further think about competence for the unknown future



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- Skype: martinmulder
- Twitter: @MartinMulder
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