

# The Challenge of Theorising Competence Development: A Focus on the Public Sector

Webinar for REAL (Researching Education and Labour), WITS  
University, Johannesburg, October 27, 2021



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Chair Academic Board NCOI University of Applied Sciences  
Director-Owner MM Consultancy for Education and Training, The Netherlands

<https://www.mmulder.nl/>

# Agenda

1. My background
2. What is competence?
3. Where does the competence concept come from?
4. Competence as academic construct
5. Competence theory
6. Competence in practice
7. Conclusions

# Professional background

- ▶ Elementary school teacher 1974-1979
- ▶ Teacher educator and curriculum developer in nursing teacher education 1980-1983
- ▶ Master of Education University Utrecht (1982)
- ▶ Policy expert in teacher training for technical education 1983-1984
- ▶ Associate professor in vocational and corporate education 1984-1998 (University of Twente) (PhD 1992)
- ▶ Full professor and Department Chair in competence studies 1998-2017 (Wageningen University)
- ▶ Director-owner MM Consultancy for Learning and Development
- ▶ Chair Academic Board NCOI University of Applied Sciences

Wageningen University has created a Competence-Based Education system during the years 2000-2010

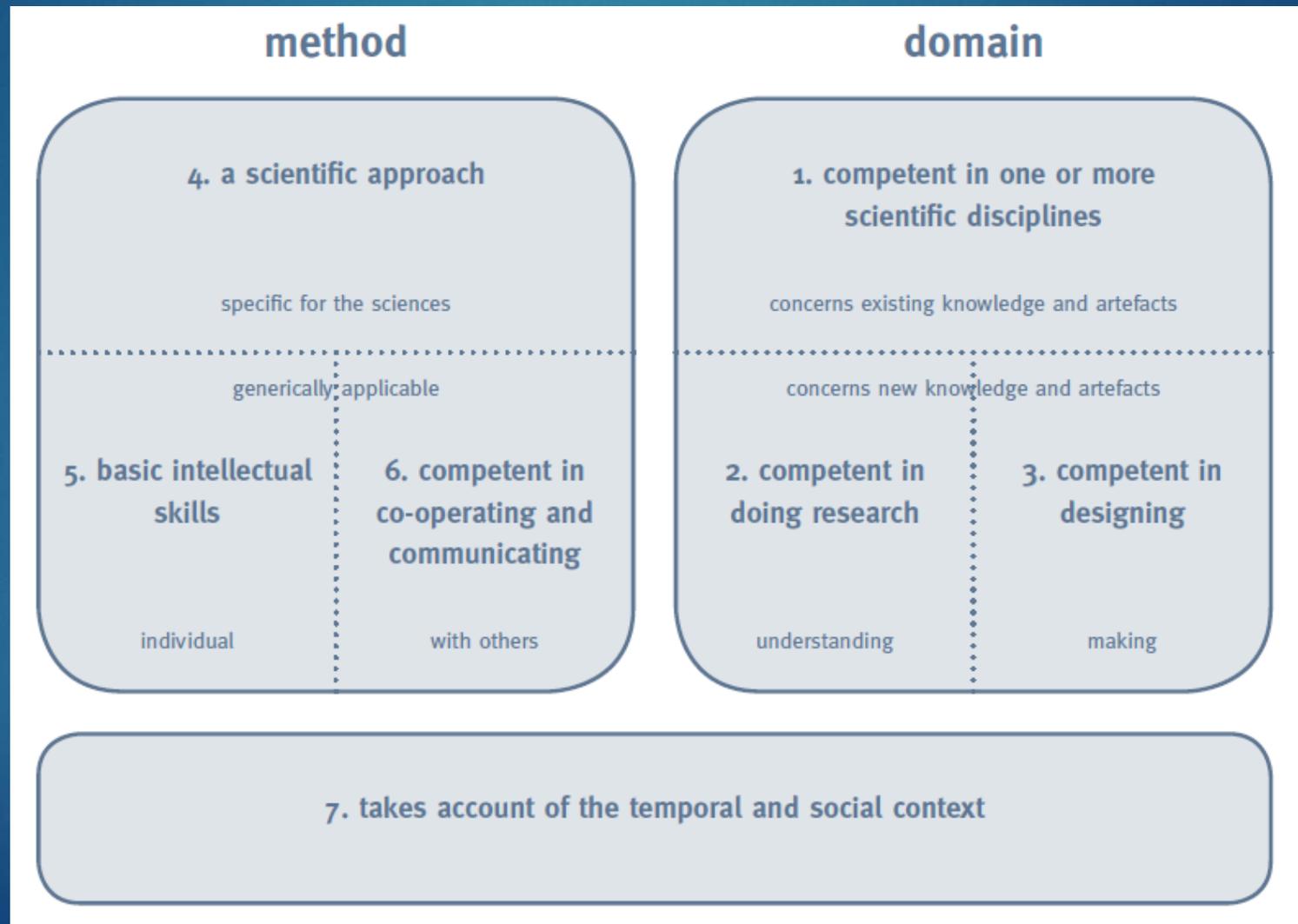
Wageningen Campus



Atlas

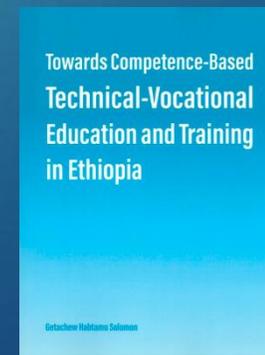
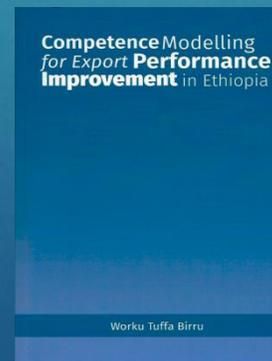
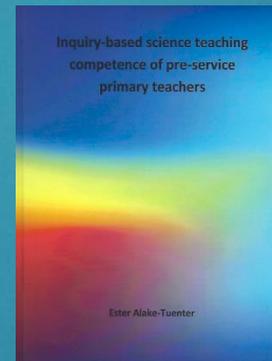
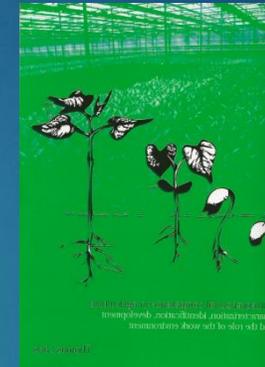
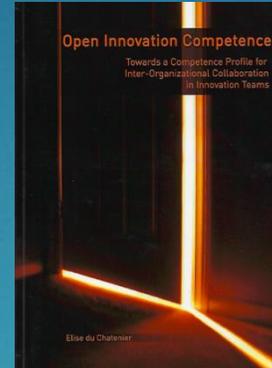
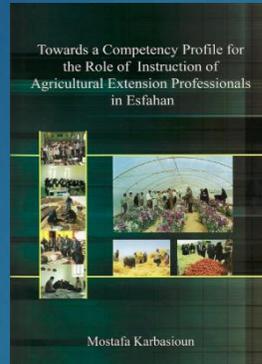


# Competence Framework for Technical University Education – TUE and 3 TUs Netherlands (2005)



	<b>Final qualifications</b>	<b>Bachelor</b>	<b>Master</b>
1	Understands the language of one or more disciplines ("T-shaped skills")	Some knowledge of other disciplines	Capable of understanding other disciplines and of placing own discipline within a multidisciplinary framework
2	Capable of conducting research	Can do research under supervision	Can do research independently and use the correct instruments
3	Capable of designing solutions (analyse and combine knowledge)	Can define problems and design solutions under supervision	Can define problems and design solutions independently
4	Has a scientific approach	Can use and develop theories, adapt models and document results	Knows about current debates in scientific practice, can critically analyze theories and document results
5	Is aware of the international context	Has a knowledge of the international context of the subject (in terms of both content and social-cultural aspects)	Can operate independently in an international context (in terms of both content and social-cultural aspects)
6	Is aware of the social context of problems/dilemmas	Is aware of the ethical and value-driven aspects and of the various roles of the expert	Integrates the social consequences of developments into the work and takes a stand as an expert
7	Is competent in collaborating and communicating	Behaves professionally and can work at project level	Is able to debate and to function as team leader

# Selection of dissertations of ECS



# Principles of Competence-based Ed

1. The competencies that are foundations for the curriculum are defined
2. Core problems are the organising unit for (re)designing the curriculum
3. Competence-development of students is assessed formatively frequently
4. Learning activities take place in several authentic situations
5. In learning and assessment processes knowledge, skills and attitudes are integrated
6. Self-responsibility and (self)reflection of students are stimulated
7. Teachers both in schools and practice fulfil their roles as coach and expert in balance
8. A foundation is realised for lifelong learning of students

Wesselink et al, 2007  
Wesselink et al, 2010  
Sturing et al, 2011



What is competence?

# What are these people doing?



They are buying flowers



D. van Ooijen	Tu en Banja Luka	100	100	100	100	100	100
D. van Ooijen	Tu en Golden Apeld	100	100	100	100	100	100
Deco Tulips BV	Tu en Armani	100	100	100	100	100	100
Deco Tulips BV	Tu en Fun For Two	100	100	100	100	100	100
Deco Tulips BV	Tu Pa Rococo	100	100	100	100	100	100

Deco Tulips BV	21051	8220a
Tu en Candy Prince	A	

A1	39	35	33	NL	560
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Firma J. Wente & Zv	Narc O Oak Wilson	100	100	100	100	100	100
V. van der Linden & Zv BV	Narc Tu Ziv	100	100	100	100	100	100
J. van der Linden & Zv BV	Narc O Carlton	100	100	100	100	100	100
J. van der Linden & Zv BV	Narc O Carlton	100	100	100	100	100	100
J. M. Rutgers & Zv	Narc T Dutch Master	100	100	100	100	100	100

J. M. Rutgers & Zv	410	270a
Narc T Dutch Master	B	

A1	40	24	12	NL	560
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ALARM  
92222

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# 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



# 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 types of competencies

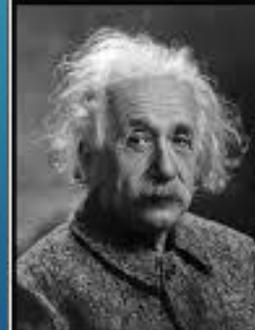
1.0 – for specific activities



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)

ixquotes.com

# Common use of the term competence in practice...synonyms

- ▶ An aircraft type license
- ▶ An approved medical officer
- ▶ An accredited laboratory
- ▶ A competent authority
- ▶ A licensed teacher
- ▶ A qualified person
- ▶ Graduate attributes
- ▶ Reading ability
- ▶ Leadership capability



# Reviews and critiques

- 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
- Lum, 2011
- Winterton, 2011
- Mulder, 2014
- Edwards, 2016
- Powell & McGrath, 2018
- Mulder, 2019



Nevertheless – the use of competence in professional practice is more popular than ever..., also in public service

## HR COMPETENCIES FOR THE 21ST CENTURY

5:00 PM - 6:30 PM (UAE Local Time),  
Thursday, 04 November 2021

Online:  Microsoft Teams

[Click here to Join the meeting](#)

Presenter



**Prof. William J. Rothwell**

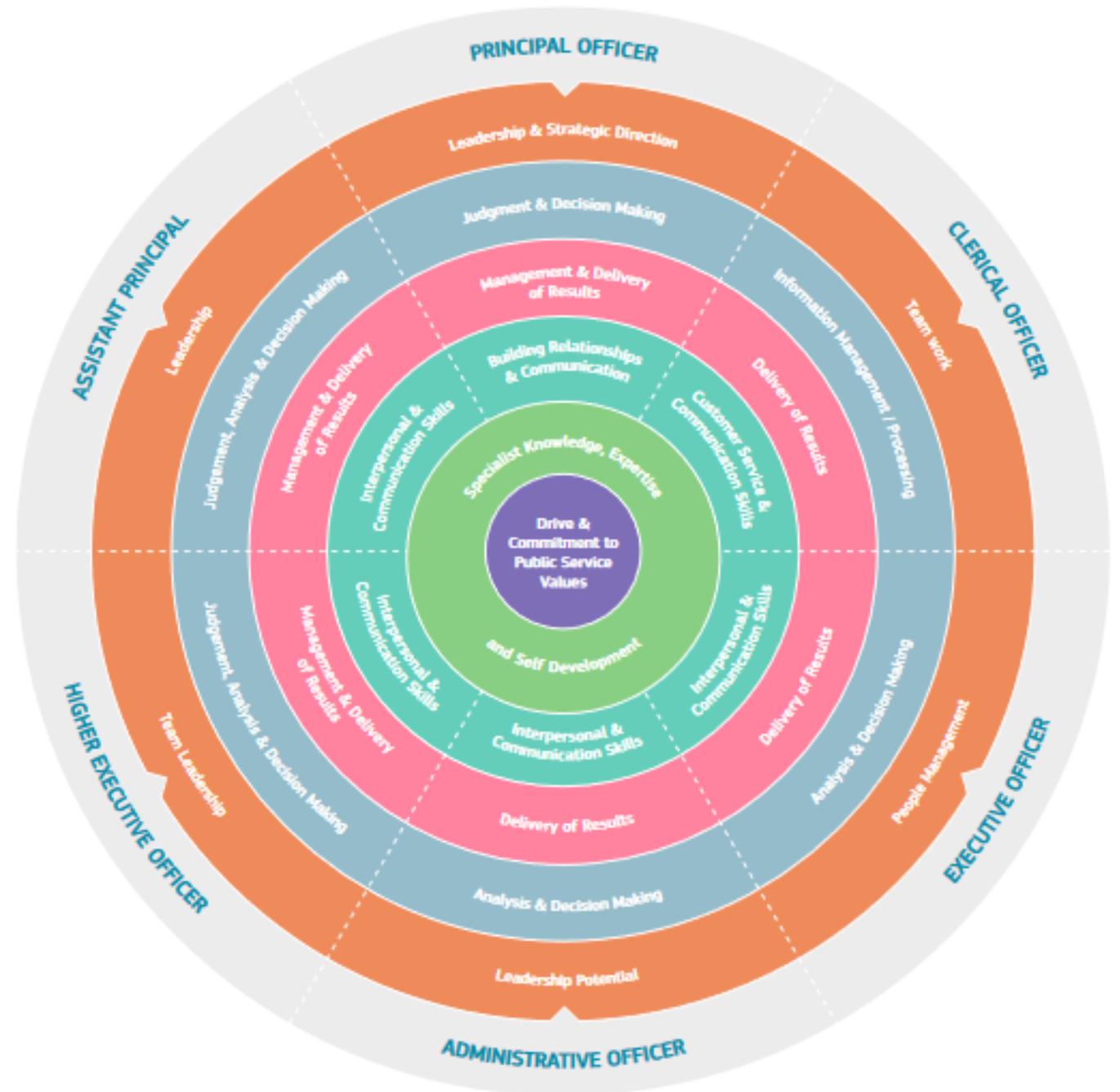
### Abstract

Traditional approaches to management of Human Resources (HR) do not seem to be working as well as previously. Using activities or jobs as the foundation for work design is increasingly out of touch with the competitive needs of the organizations that HR management serves. In contrast, competency-based HR management is more in touch with competitive needs. It can focus attention on discovering, applying, and making use of differences, some of which are otherwise ineffable, and between exemplary and fully successful performers.

This webinar's objective is to familiarize participants with the competency-based HR management approach. Therefore, the speaker will address the following questions:

- (1) How can the HR department be transformed to make the organization's HR function competency-based?
- (2) What model can be used to guide the transformation?
- (3) How can the model be applied? and
- (4) How can HR practitioners become competent in applying this new approach?

# PAS Civil Service Competency Models, 2017





Where does the competence concept come from?

# Roots of the word competence

- ▶ Sanskrit: समर्थ (samārtha)
- ▶ 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

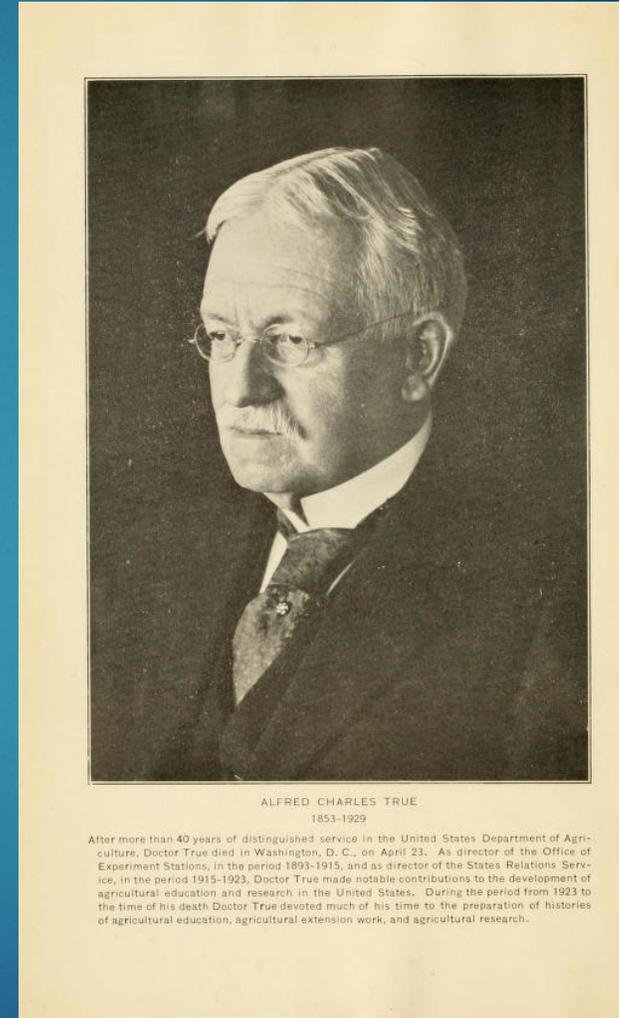
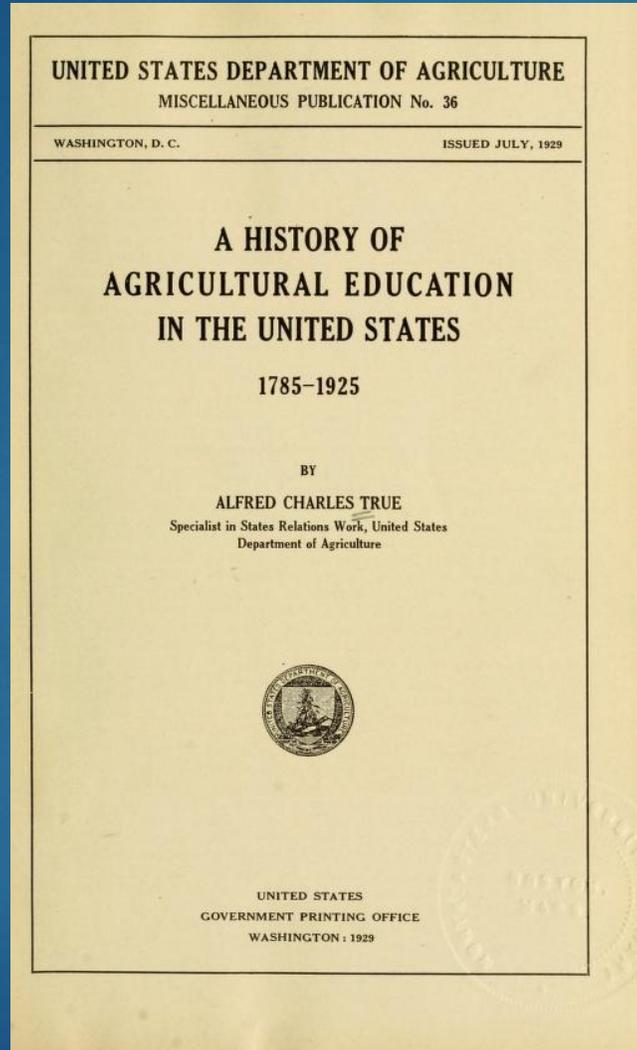
‘... Hammurabi, le roi compétent ... ‘



## Épilogue

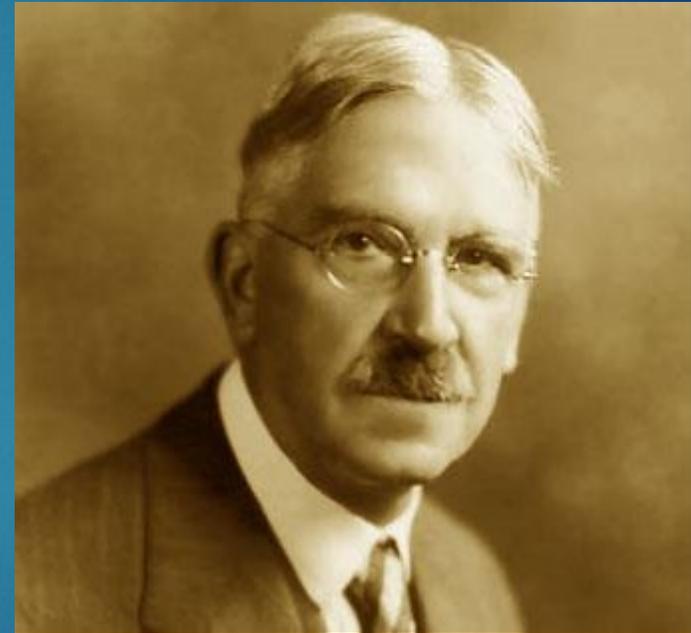
« Telles sont les décisions de justice que Hammurabi, le roi compétent, a établies pour engager le pays conformément à la vérité et à l'ordre équitable [...] Que l'homme injustement traité, qui est impliqué dans une affaire, vienne devant l'image de moi-même, le roi de justice, et se fasse lire ma stèle 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. »

# In educational reports - Alfred True, 1929



# In educational books - John Dewey, 1916

- ▶ The democratic ideal
- ▶ Everybody should develop competence
- ▶ To choose and pursue a career



# Competence as academic construct

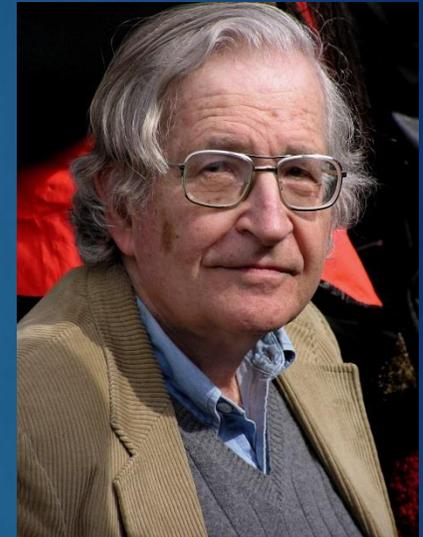
# Robert Winthrop White, 1959

- ▶ 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

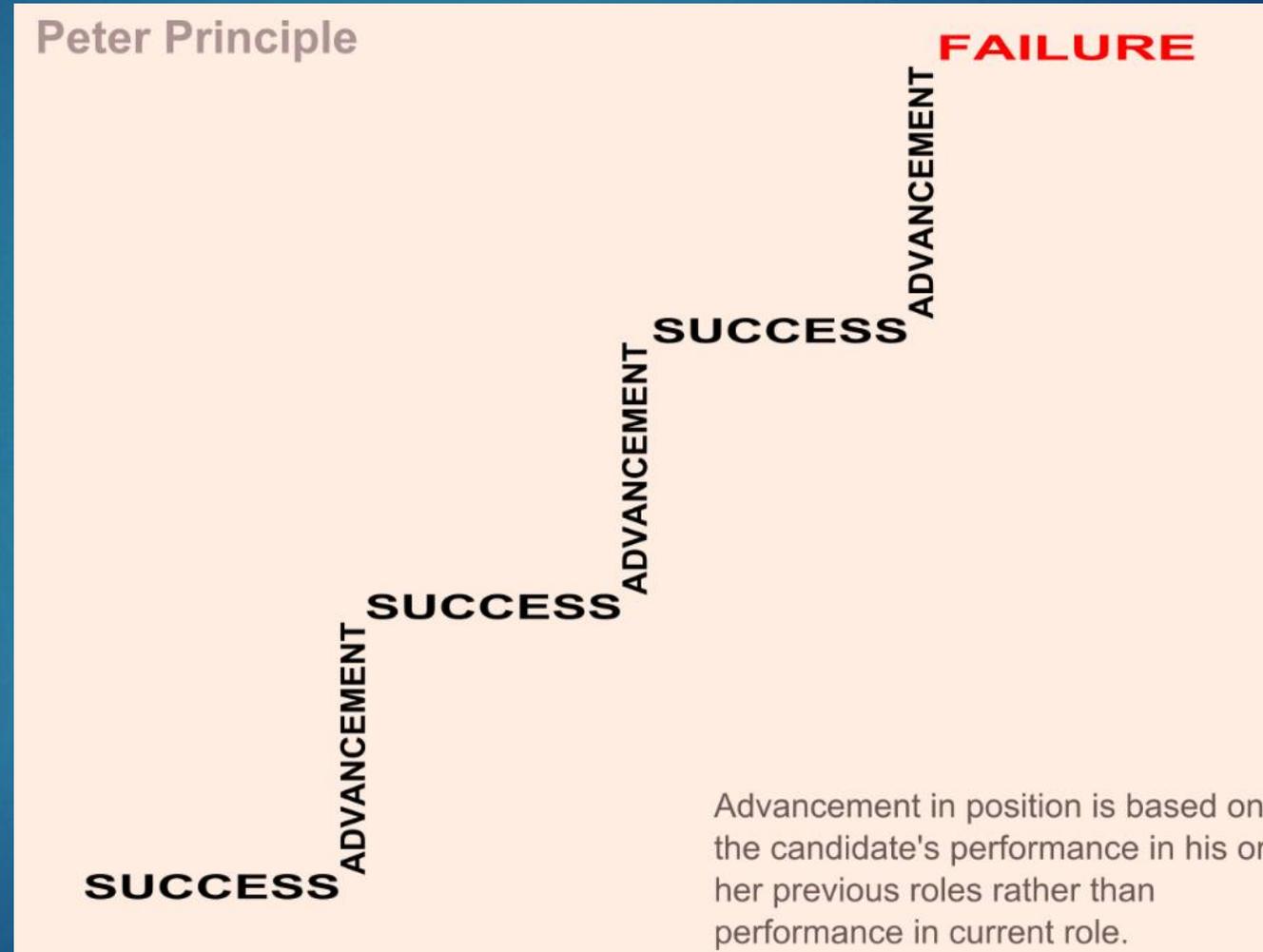
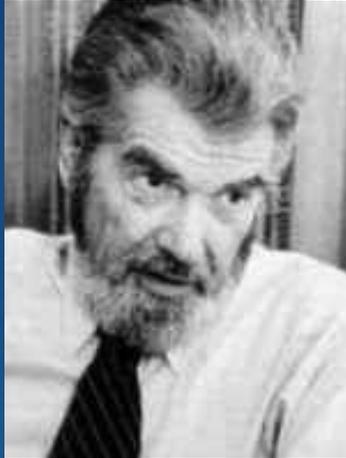


# Noam Chomsky, 1965

- ▶ Competence is 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



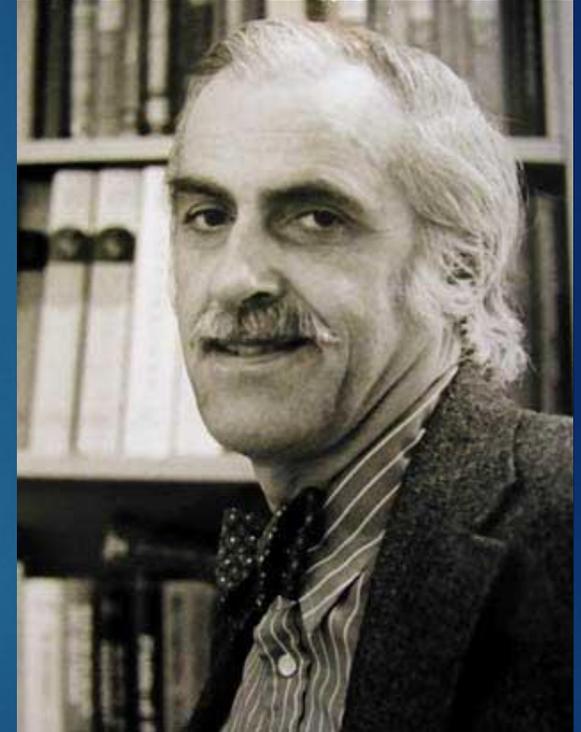
# Lawrence J. Peter, 1969



Peter, L. J. & Hull, R. (1969). *The Peter Principle: Why Things Always Go Wrong*. New York: William Morrow and Company.

# 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
- ▶ Criterion-based job analysis may lead to over-detailed tests
- ▶ Competencies should be identified by what superior performers do



# Competence Performance Management

- ▶ Competence: Engineering Worthy  
Performance Tom Gilbert (1978)
- ▶ The competent manager  
Richard Boyatzis (1982)



# The Core Competence of the Organization, HBR, 1990

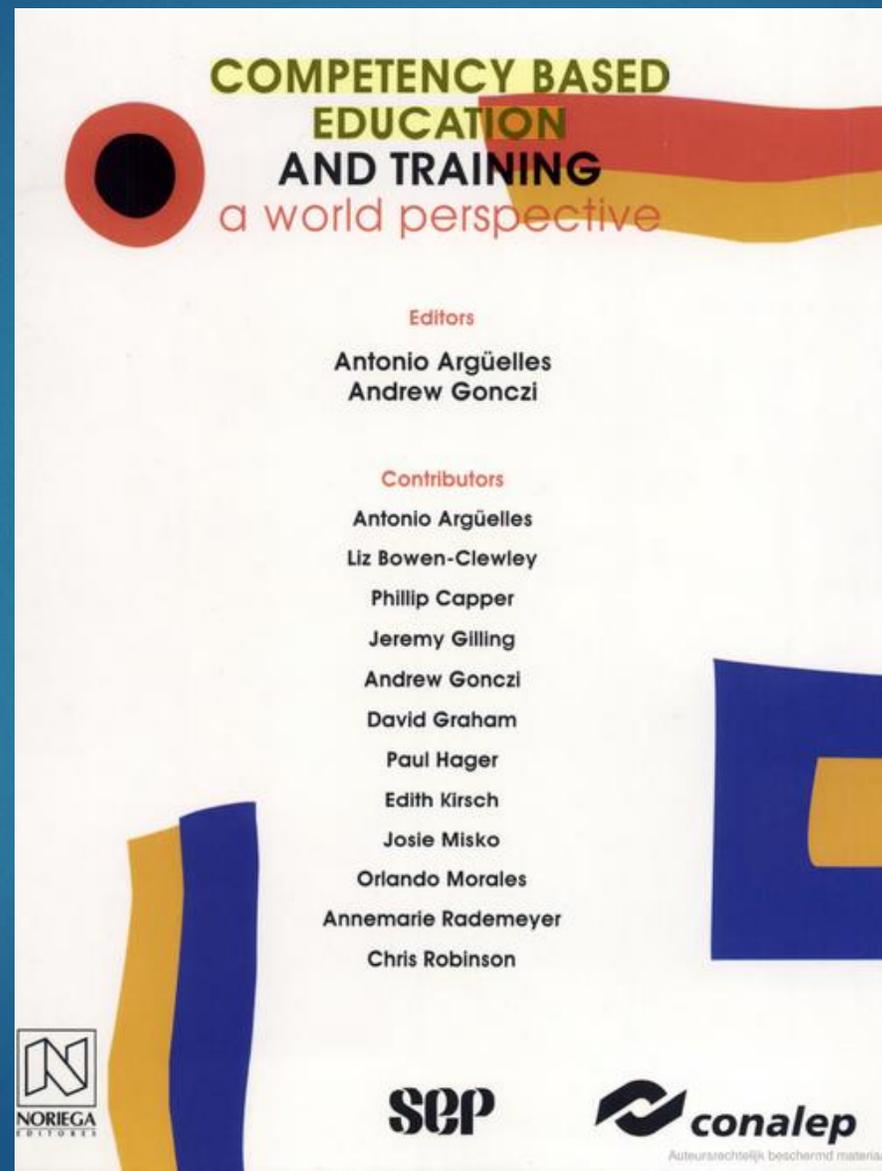


Coimbatore Krishnarao Prahalad



Gary Hamel

# Argüelles & Gonczi, 2000



Technical and Vocational Education and Training:  
Issues, Concerns and Prospects 23

Martin Mulder *Editor*

# Competence- based Vocational and Professional Education

Bridging the Worlds of Work and  
Education

 Springer

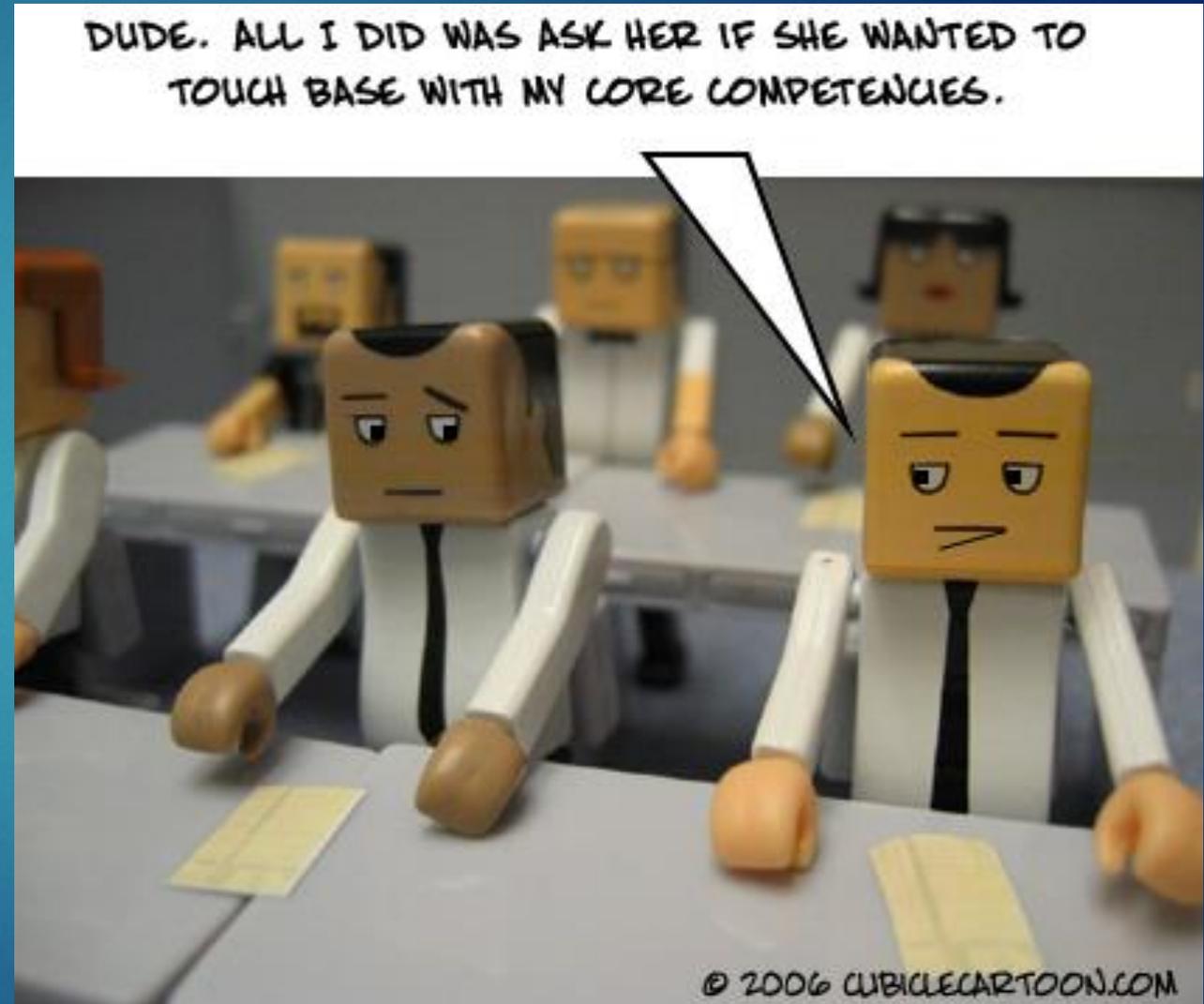
- ▶ 50 chapters
- ▶ ≥ 85 authors
- ▶ from all continents
- ▶ Theories
- ▶ Policy developments
- ▶ CBE systems features
- ▶ Competence domains
- ▶ Synthesis

1st ed. 2017, XXXIV, 1142 p. 56 illus.

<https://www.springer.com/gp/book/9783319417110>

# Dimensions in definitions of competence

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



# Competence theory

# Diversity in competence theories





# Theories of competence

1. Performance theory – the AMO-model (Appelbaum et al.)
2. Self-determination theory (Deci & Ryan) – the CAR-model
3. Alignment theory (Mulder)
4. Domains of occupational competence (Billett)
5. Shaping competence theory (Rauner)
6. Instructional theory (De Corte et al) – the CLIA-model
7. Capability theory (Cairns & Malloch)
8. Human development and capabilities theory (Nussbaum)
9. Entrustable Professional Activities (Ten Cate)
10. Competence Assessment (Miller; Van der Vleuten)

# Competence and Performance

(after Appelbaum et al., 2000)

- ▶  $P = C(ksa) \times O(rpt) \times M(ieo)$
- ▶ P = Performance, is a product of:
  - ▶ C = Competence (consisting of knowledge, skills at attitudes)
  - ▶ O = Opportunity (including resources, positions, task assignments)
  - ▶ M = Motivation (including incentives, expectations, objectives).

# Competence and Self-determination



Ryan, R. M.; Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68–78.

# Three groups of competence theories

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



# Theoretical contributions of the competence concept

- ▶ Explains variation in performance (AMO-model)
- ▶ Triggers motivation (CAR-theory)
- ▶ Points at improvement potential (worthy performance)
- ▶ Articulates domains of teaching (based on job profiles)
- ▶ Holds course of learning (core competence)
- ▶ Provides communication language (about learning and development priorities)
- ▶ Defines expectations frameworks (for professions, educational programs, careers)
- ▶ Includes application of knowledge in practice
- ▶ Stresses the importance of the attitude dimension in education



# Competence in Practice: Competence Frameworks

# Competence frameworks

- ▶ Purchasing - Mulder et al (2005)
- ▶ Agricultural extension - Karbasioun et al (2007)
- ▶ HIV/AIDS in agricultural advisory work - Brinkman et al (2007)
- ▶ Entrepreneurship - Mulder et al (2007), Lans (2009), Lans et al (2008; 2010; 2011)
- ▶ Horticulture - Van der Heide et al (2008); Mulder et al (2011; 2013)
- ▶ Interdisciplinarity in higher education - Spelt et al (2009)
- ▶ Open innovation - Du Chatenier (2009) and Du Chatenier et al (2009, 2010)
- ▶ 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)

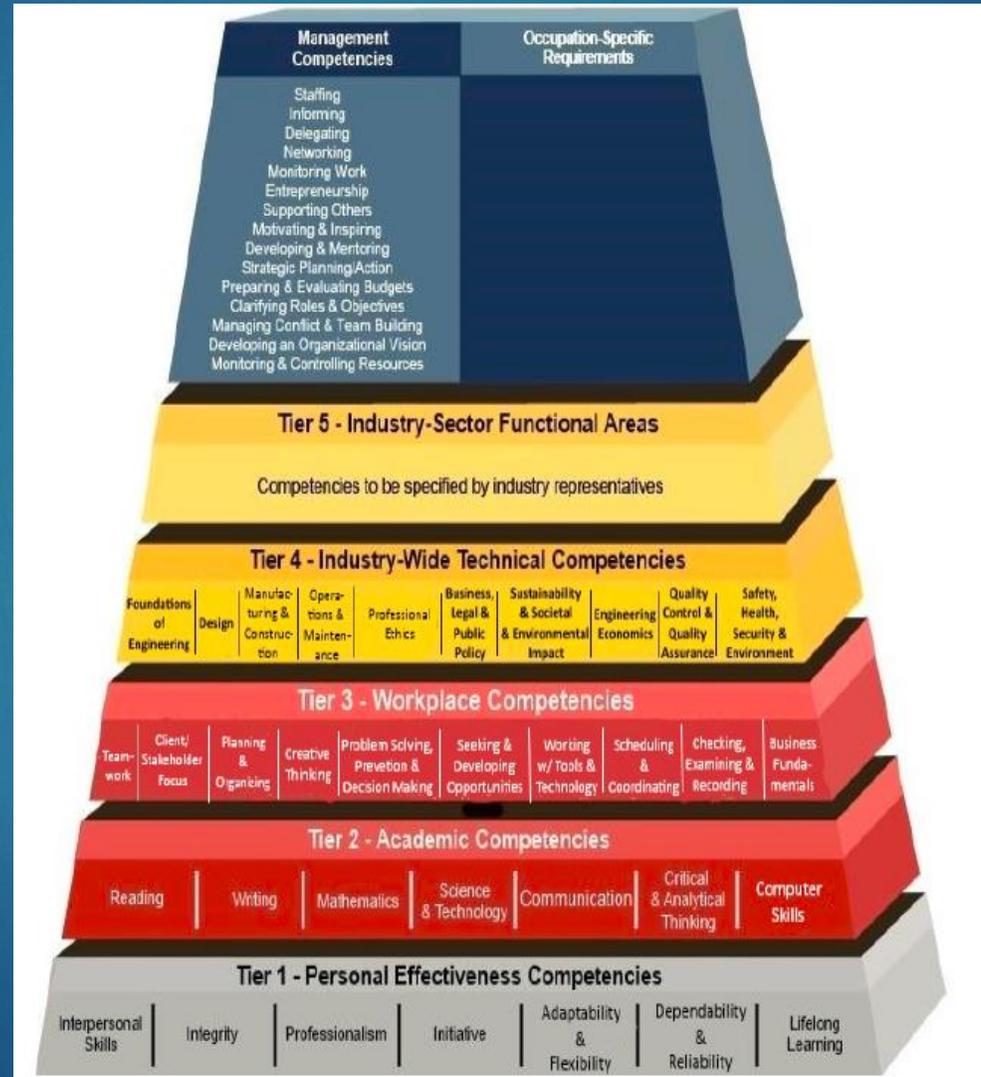
# NEA Leadership Competency Framework, 2020

<https://www.nea.org/professional-excellence/leadership-development/leadership-competencies>



# Engineering competency model 2015

<http://www.aaes.org/model>



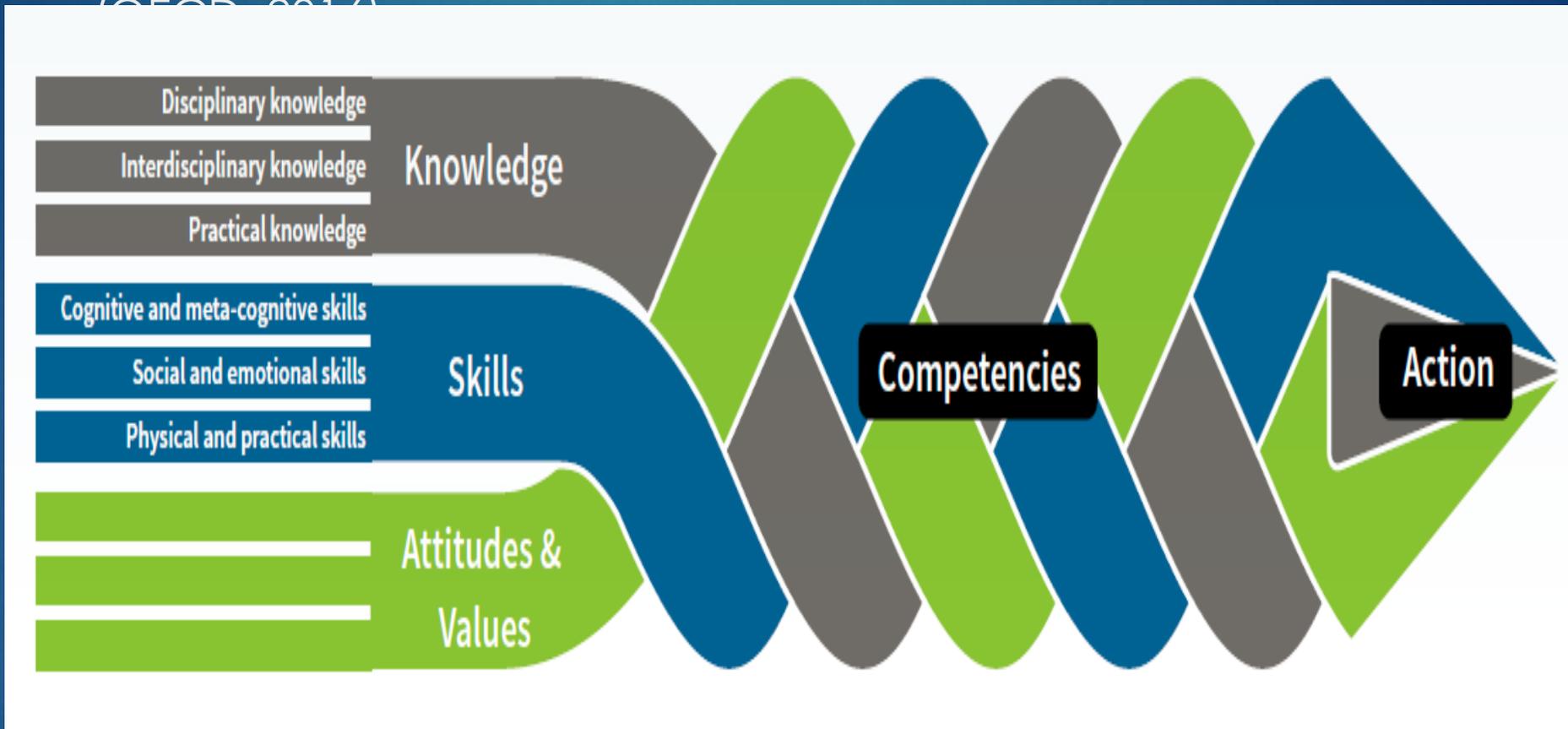
# IMA Management Accounting Competency Framework

<https://www.imanet.org/career-resources/management-accounting-competencies?ssopc=1>



# Global competency for an inclusive world

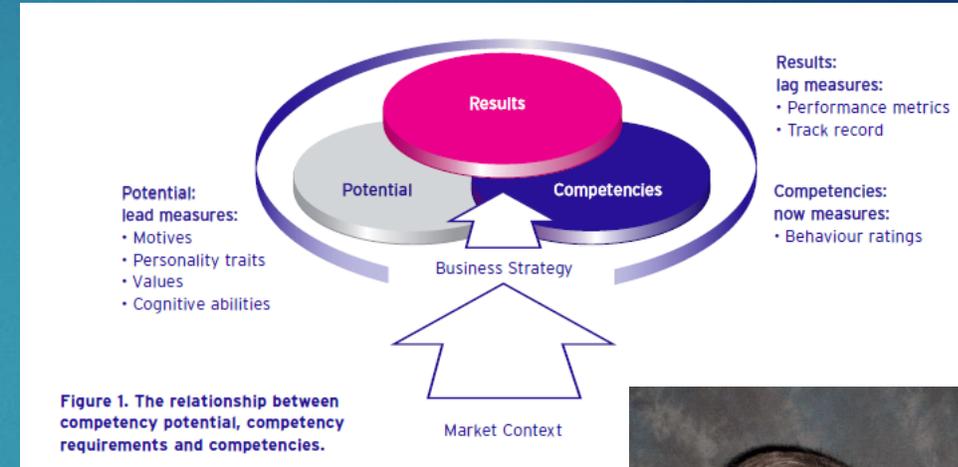
(OECD, 2014)



Source: <https://www.oecd.org/pisa/aboutpisa/Global-competency-for-an-inclusive-world.pdf>

# Bartram – The great eight Competency Framework (2005)

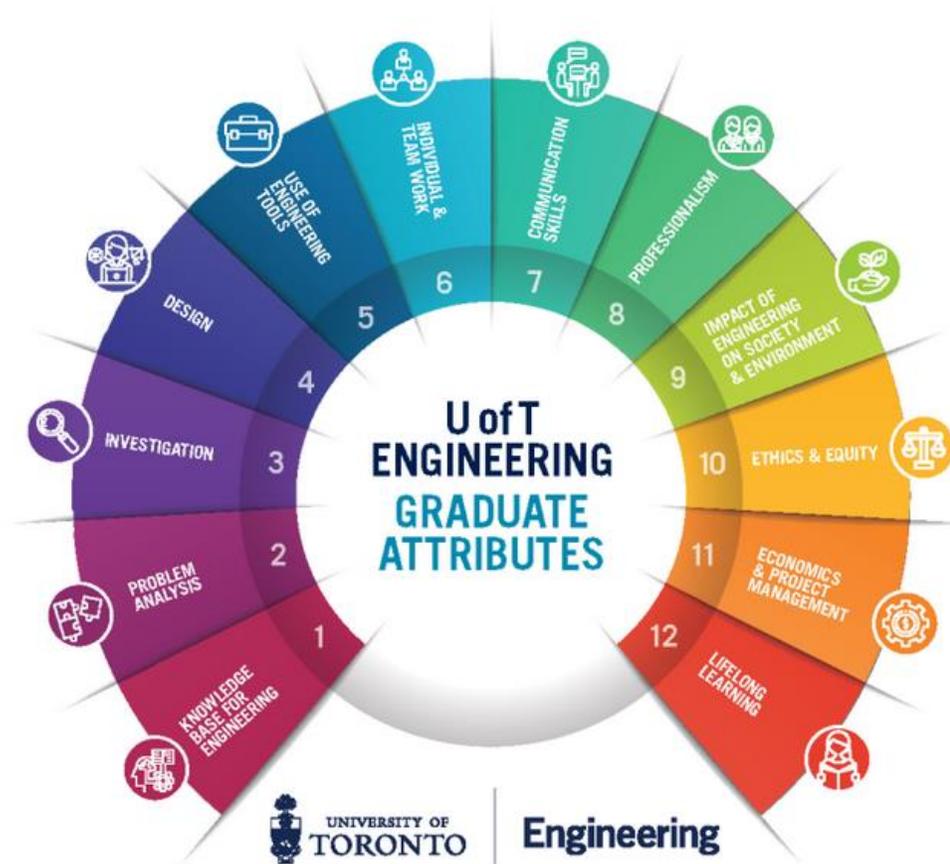
- ▶ Leading and Deciding
- ▶ Supporting and Co-operating
- ▶ Interacting and Presenting
- ▶ Analysing and Interpreting
- ▶ Creating and Conceptualising
- ▶ Organising and Executing
- ▶ Adapting and Coping
- ▶ Enterprising and Performing



# HE Institutions: Graduate attributes

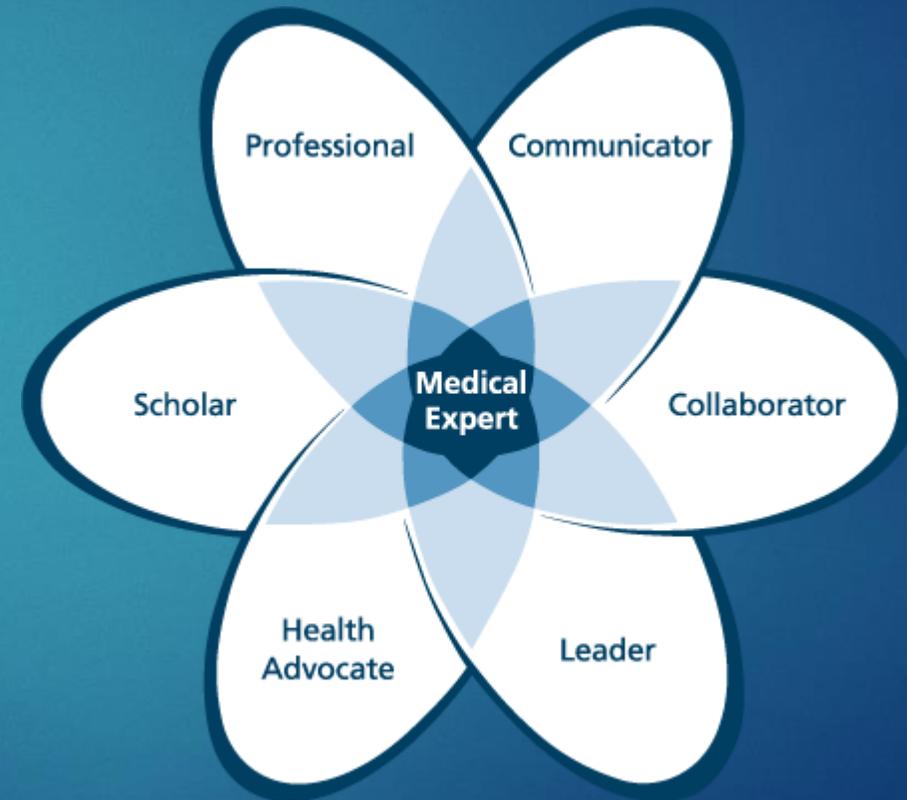
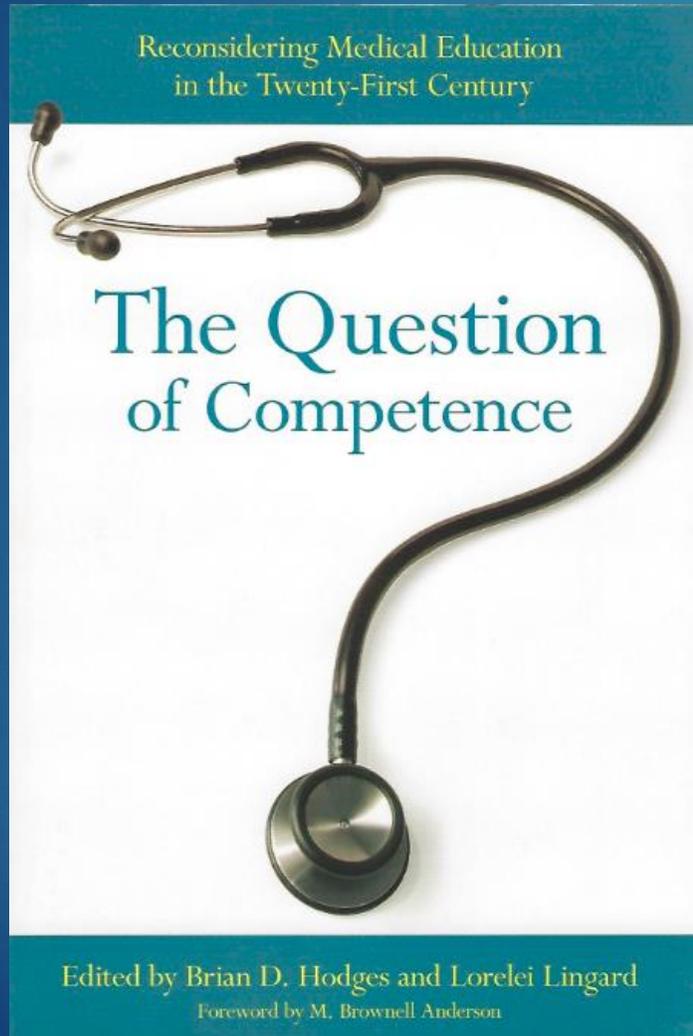
## What are Graduate Attributes?

As part of the [Washington Accord](#), every accredited engineering institution in Canada and every other signatory country must demonstrate that the graduates of their programs possess the attributes described under the following headings:



# Competence in Medicine - Cornell Press, 2012

## CanMeds Competency Framework, 2015



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

# Elements of competence frameworks

## Chart Tables Explained

### LEADING OUR PROFESSIONS

COMPETENCY DOMAIN TITLE

DEFINITION

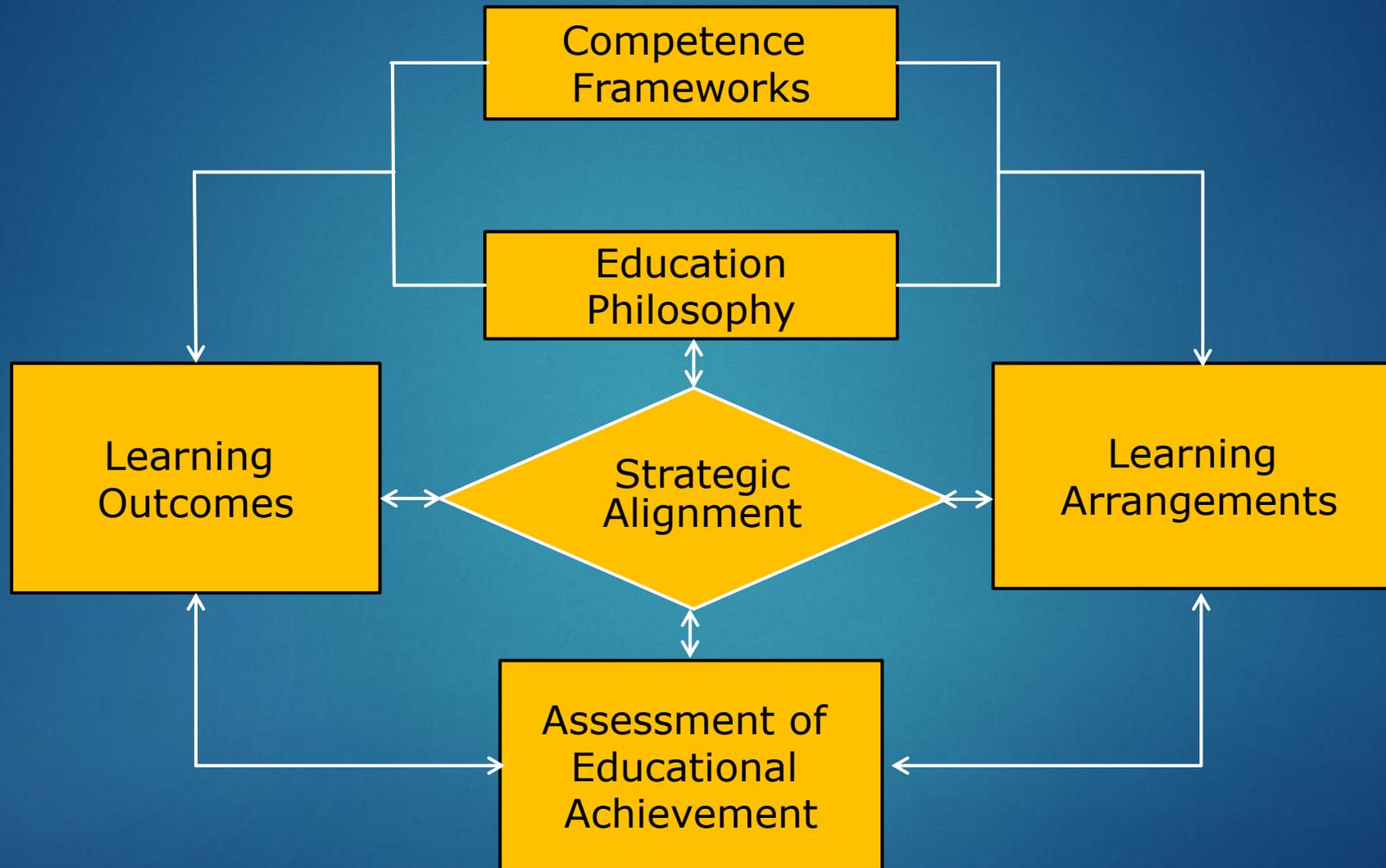
Advocates for professional learning, professional quality and social diversity inside our professions and promotes our union's role in advancing education transformation, student learning, and equitable access to opportunities.

PROGRESSION

Competency Theme	Level 1: Foundational	Level 2: Mobilizing and Power Building	Level 3: Agenda Driving
Supports professional excellence and builds capacity for continual improvement and learning to ensure the success of all students	<p>Understands the value of continuous improvement and learning for all educators across their career continuum and what this looks like in practice</p> <p><b>THEME</b> Considerations</p> <p>Gain and understanding of the career continuums for ESP and teachers, with a focus on the role of professional learning and reflective practice (e.g. learning cycles) and supports in moving along each continuum and growth</p>	<p>Engages with others in meaningful development and models for continuous improvement and learning for all educators across their career continuum</p> <p><b>PROGRAM LEARNING COMPONENTS</b></p> <p><b>Learning Considerations</b></p> <p>Understands strategies to lead others in best practices in professional learning and support, such as adult learning theory, models that are effective in professional learning, and ways to ensure that professional learning is embedded in and informed by context. Learns how to use strategies to engage others in securing high-quality professional learning opportunities and</p>	<p>Builds and sustains an organizational culture of professionalism and reflective practice that illustrates the professions' commitment to continuous improvement and learning for all educators across their professional continuums</p> <p><b>BEHAVIORS</b></p> <p>Utilizes system-level strategies (e.g. improvement science, labor/management collaboration) to create cultures of professionalism and reflective practice in support of student learning and growth</p>
Recognizes and promotes the Association's role in improving the learning of all students	<p>Understands the current and evolving needs of all students, educators, schools, and campuses</p> <p><b>Learning Considerations</b></p> <p>Individuals develop an awareness and understanding of how the Association leverages its strengths by identifying student needs in their worksites and implementing member-led solutions to meet those needs</p>	<p>Engages all leaders and members and motivates members from diverse backgrounds to advocate for a meaningful Association role in ensuring the success of all students, educators, schools, and campuses</p> <p><b>Learning Considerations</b></p> <p>Understands how to help and support others identify student needs in their worksites and collectively implement member- and Association-led solutions to meet those needs</p>	<p>Elevates the Association's role by developing members' leadership capacity and collaborating with innovative allies to ensure the success of all students, educators, schools, and campuses</p> <p><b>Learning Considerations</b></p> <p>Leads the process of developing and using models and strategies across systems (e.g. labor/management collaboration, partnership and community engagement) to enhance the Association's ability to drive the success of P-20 education systems</p>

<https://www.nea.org/professional-excellence/leadership-development/leadership-competencies>

# Strategic alignment (Biggs) expanded



# Competence in Practice

# Competence Management and Development



## Competence profiles

Personnel management instruments

Hiring & Selection

Assessment & Rewarding

Learning & Development

Desired Results of Organisation's HR Policies and Processes

- Performance improvement
- Increasing productivity and client satisfaction
- Reducing complaints and disturbances
- Increasing employability and career chances
- Increasing job satisfaction and motivation
- Reducing illness absenteeism



Person

Organisation

# Critical remarks on competence development in organisations

- ▶ Time
- ▶ Cost
- ▶ Jargon
- ▶ Bureaucracy
- ▶ Reliability and validity
- ▶ Choice of effective learning methods is open
- ▶ Too little attention to learning competence
- ▶ Missing link with performance assessment

# Advocates of Competence Development in Organisations

- ▶ Systematic Attention for Life Long Learning
- ▶ Vertical Alignment of HR related Policy Processes
- ▶ Horizontal Alignment of HR related Instruments and Practices
- ▶ Flexibilisation of HR Development
- ▶ Tools for HR Professionals
- ▶ Having a tool for expectation management and assessment of work behaviour

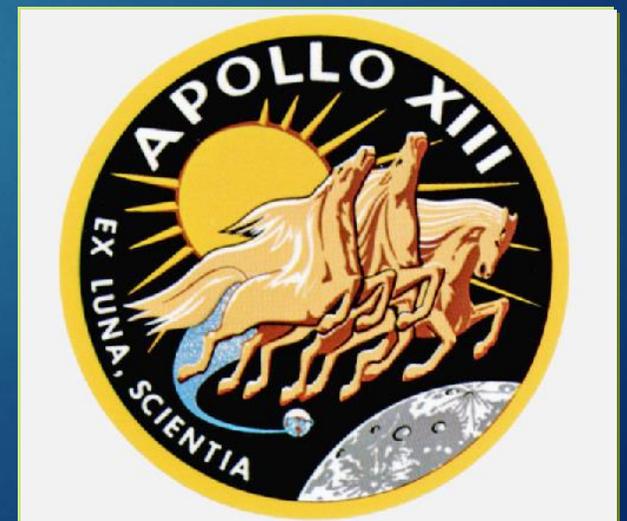


# Levels of competence in professional development

5. Brilliance – great talent of superb performance
  - ▶ Star
4. Excellence – delivering outstanding performance
  - ▶ Expert/specialist
3. Competence – capacity of independent work
  - ▶ Professional
2. Nascence – work under guidance
  - ▶ Apprentice
1. Ignorance – work by instructions
  - ▶ Novice



Mission Control Center during the Apollo 13 oxygen cell failure (Photo: NASA)



# Popular levels in annual performance assessments

1. Needs attention
2. Sufficient
3. Good
4. Excellent

# Competence Assessment, Recognition and Development

FORMATION, MODE D'EMPLOI

## TIRER PARTI D'UN BILAN DE COMPETENCES

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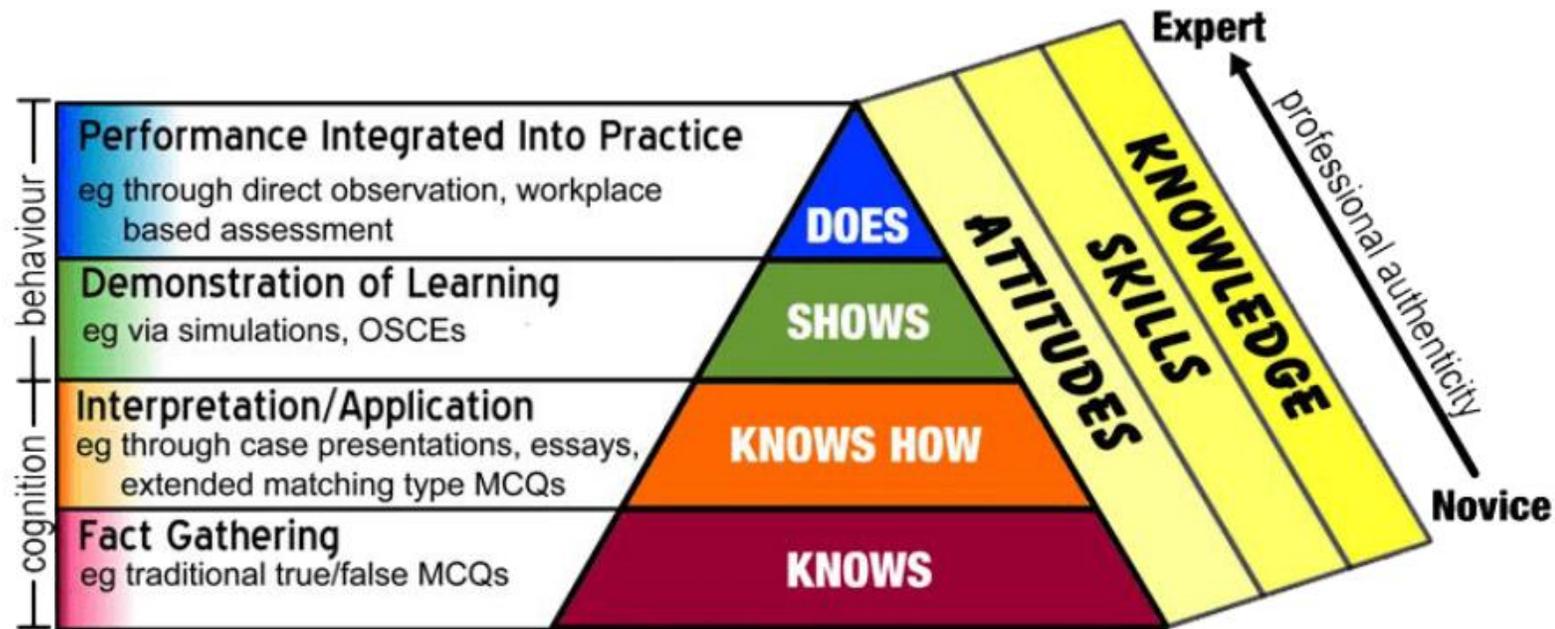
*Vous souhaitez donner un nouvel élan à votre vie professionnelle ? Un bilan de compétences vous aidera à faire le point et à définir un projet. Voici quelques conseils pour profiter pleinement de ce dispositif. ■*

Lydie Colders

# Miller's Pyramid of Competence

## MILLER'S PRISM OF CLINICAL COMPETENCE (aka Miller's Pyramid)

it is only in the "does" triangle that the doctor truly performs



Based on work by Miller GE, *The Assessment of Clinical Skills/Competence/Performance*; Acad. Med. 1990; 65(9): 63-67  
Adapted by Drs. R. Mehay & R. Burns, UK (Jan 2009)

# Validity threats of competence self-assessments

- ▶ Imposter syndrome
  - ▶ Professional uncertainty; Underestimating self-competence
  - ▶ Too good to know that own competence is of high level
  - ▶ 'What I am doing is so easy that everyone can do it'
- ▶ Dunning-Kruger effect
  - ▶ Uneducated incompetence: Overestimating self-competence
  - ▶ Too much incompetence to know that one is incompetent
  - ▶ 'What others are doing is so easy that I can also do it'
- ▶ Incompetence-compensation-competence
  - ▶ 'I cannot do what is expected, but I can hide it very well'

# Conclusions

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- ▶ Competence theories: wide variation
- ▶ Various merits of competence theories
- ▶ Definition of competence: multiple dimensions
- ▶ Constructive dialogue needed on conceptualizations
- ▶ Strong thrust on implementing competence practices
- ▶ Collective effort needed to avoid pitfalls
- ▶ Research needed on value added beyond competence-selfassessment



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