Teaching at the 21st century University

Prof. Jacques Lanarès

UNIL | Université de Lausanne

- ✓ Which main evolutions ?
- ✓ What challenges ?
- ✓ How to address these challenges ?

Which main evolutions ?

- ✓ Political
- ✓ Economical
- ✓ “Psycho-sociological”
- ✓ Technological

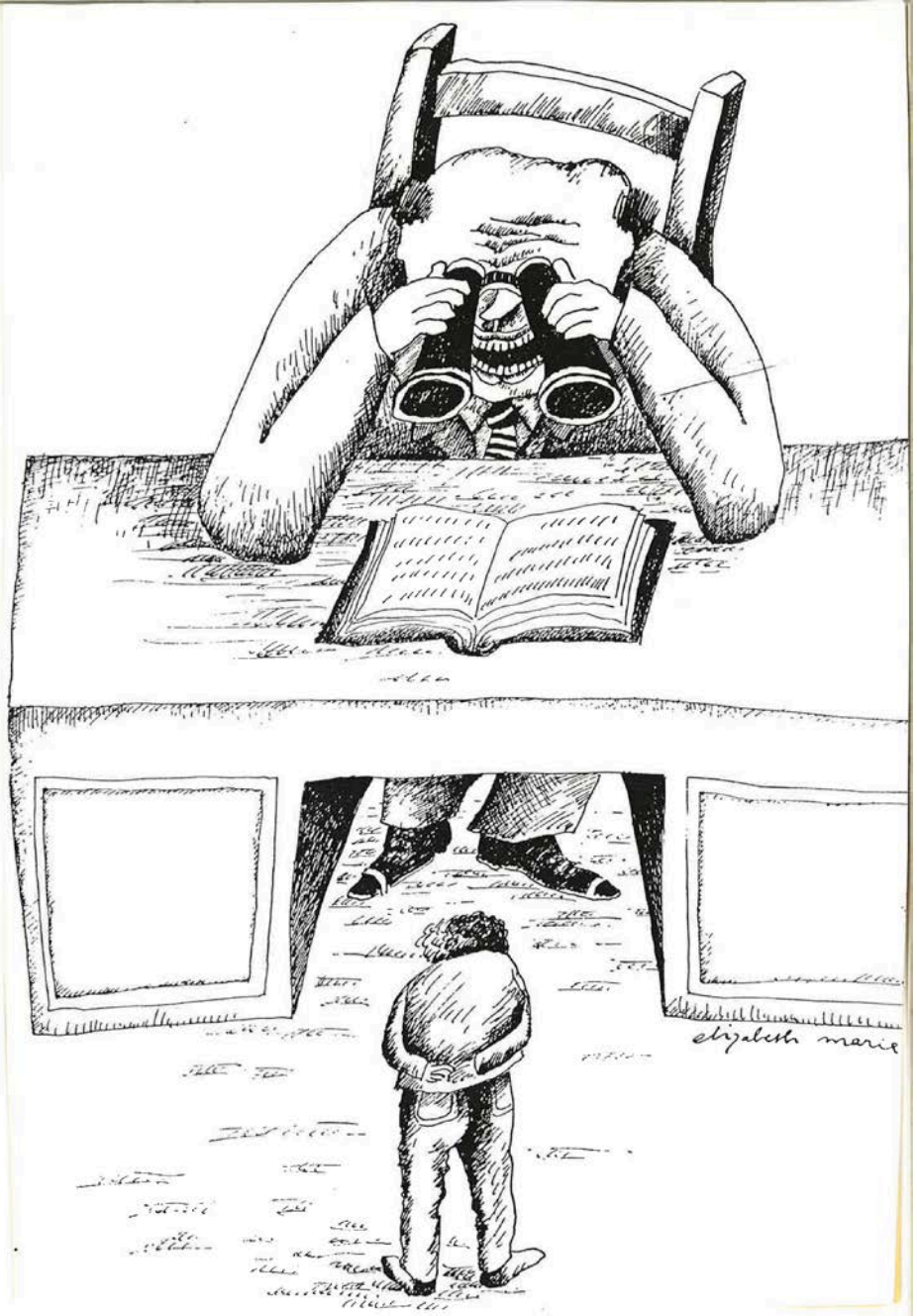
- ✓ Political
  - autonomy & accountability
  - EHEA – Bologna Process -ESG

Un cours à l'université donné par Henricus de Alemannia (peinture de Laurent de Voltina (seconde moitié du 14e siècle)

Can you tell me what happened last week ?

Nothing happened the Prof spoke all the time

Student centered Teaching & Learning



1.3 Student-centered learning, teaching and assessment

Institutions should ensure that the programmes are delivered in a way that encourages students to take an active role in creating the learning process, and that the assessment of students reflects this approach

Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG)

A multidimensional concept & cultural change

- Diverse & Active Teaching strategies
- Flexibility of individual « trajectories »
- Support structures for Learning
- Responsabilisation & autonomy
- Involvement in programme elaboration

- ✓ Economical
  - Competition between HEI’s

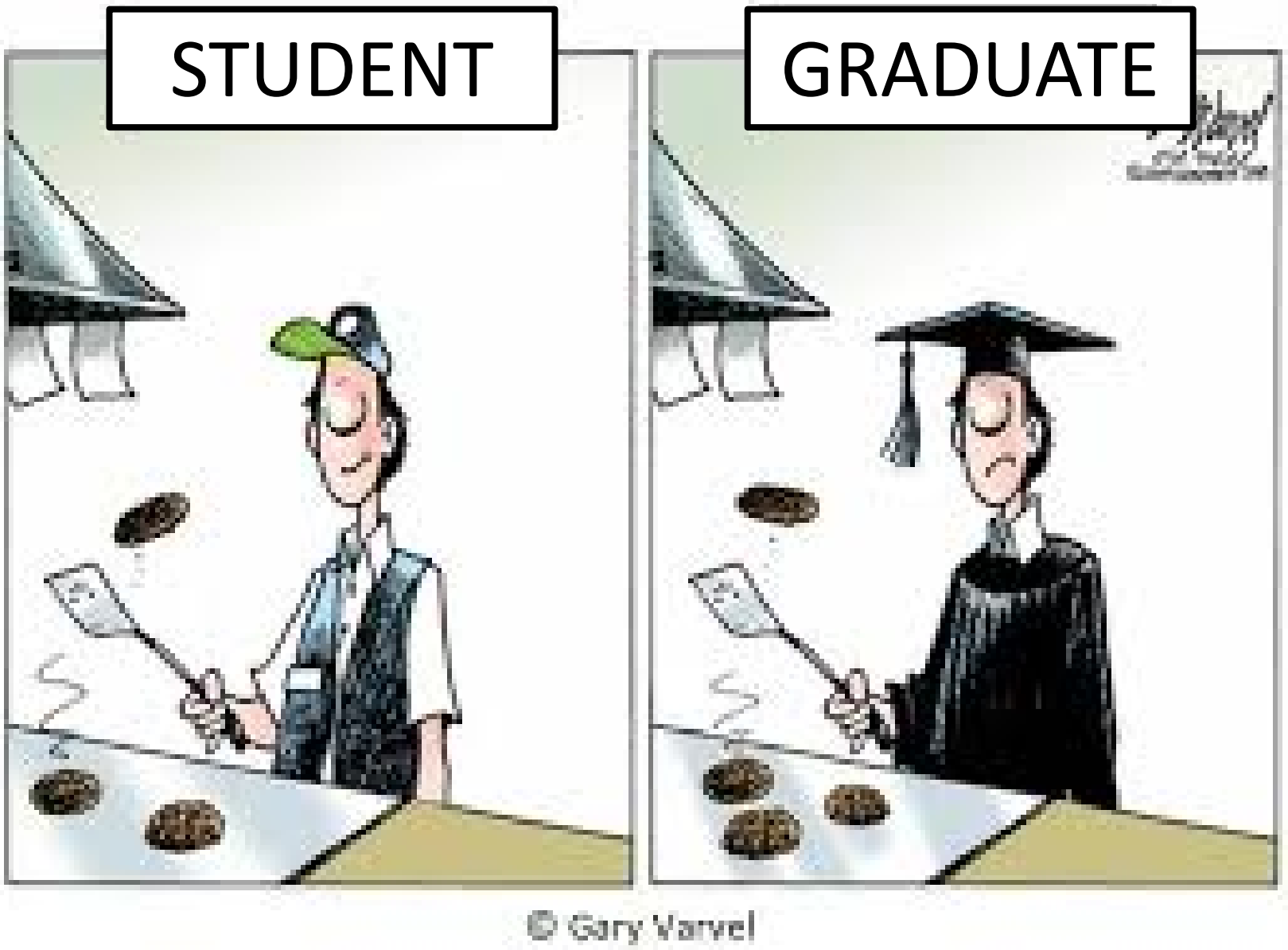
Globalisation & compétition

CWUR World University Ranking

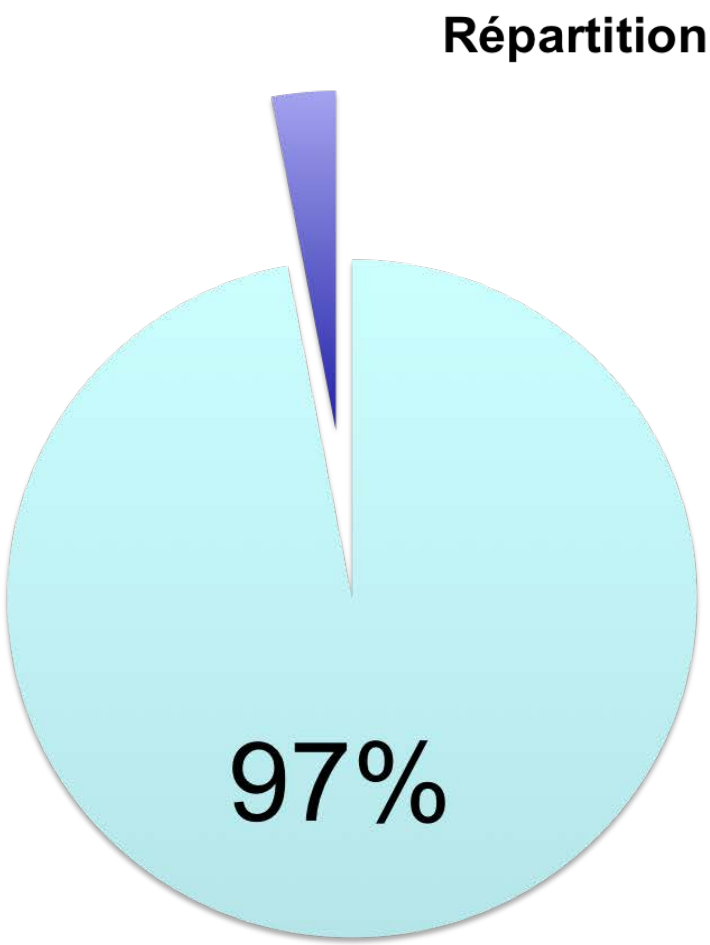
THE TIMES HIGHER EDUCATION WORLD UNIVERSITY RANKINGS

QS WORLD UNIVERSITY RANKINGS

- ✓ Economical
  - Competition between HEI’s
  - Employability of graduates

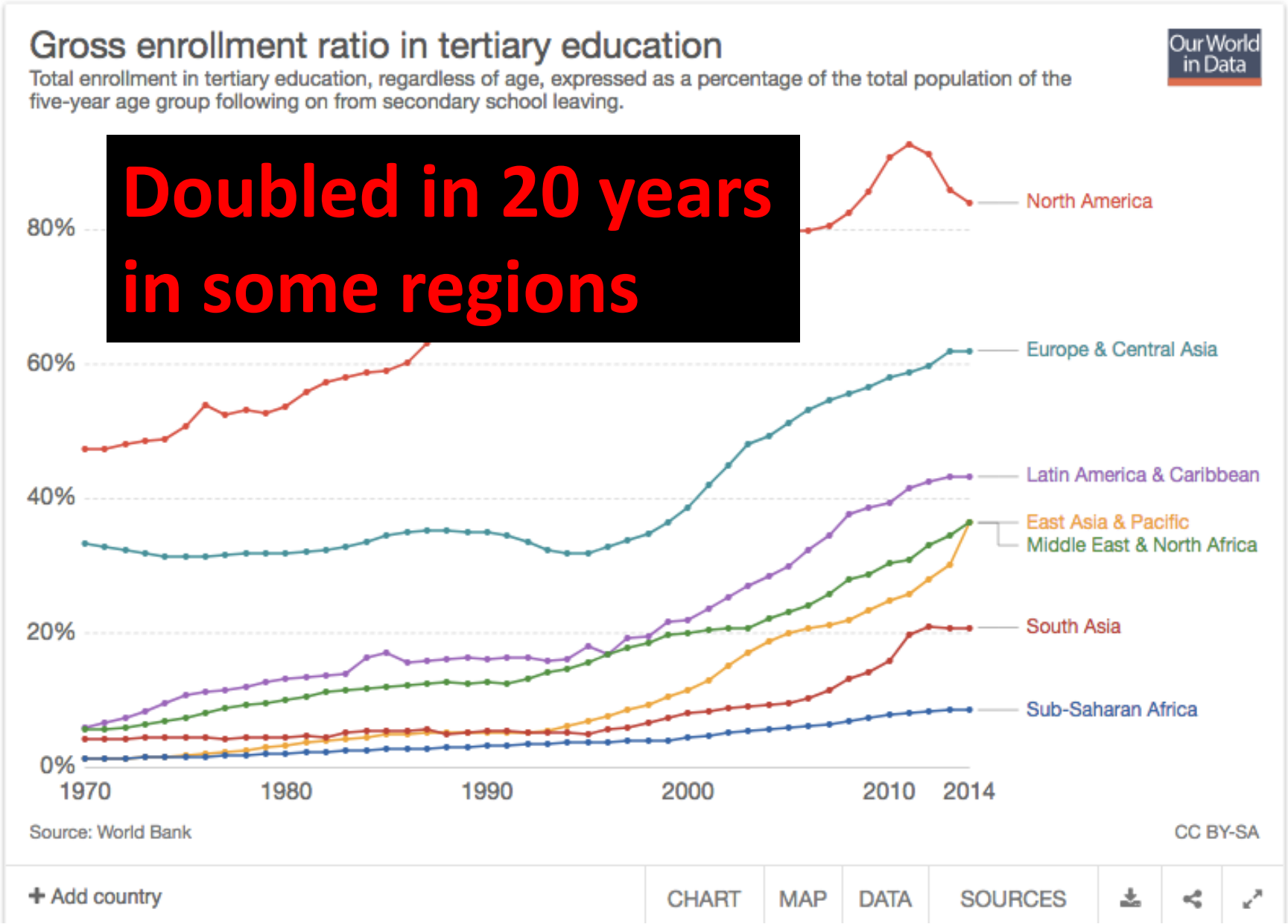

STUDENT
GRADUATE
© Gary Varvel

< 3 % of students will pursue an academic carreer



✓ “Psycho-Sociological”

- “massification”


Gross enrollment ratio in tertiary education
Total enrollment in tertiary education, regardless of age, expressed as a percentage of the total population of the five-year age group following on from secondary school leaving.
Our World in Data
Doubled in 20 years in some regions
80%
60%
40%
20%
0%
1970
1980
1990
2000
2010
2014
North America
Europe & Central Asia
Latin America & Caribbean
East Asia & Pacific
Middle East & North Africa
South Asia
Sub-Saharan Africa
Source: World Bank
CC BY-SA
+ Add country
CHART
MAP
DATA
SOURCES

Source OCDE

- ✓ “Psycho-Sociological”
  - “massification”
  - Evolution of profiles

theguardian

Generation Z is starting university – but is higher education ready?

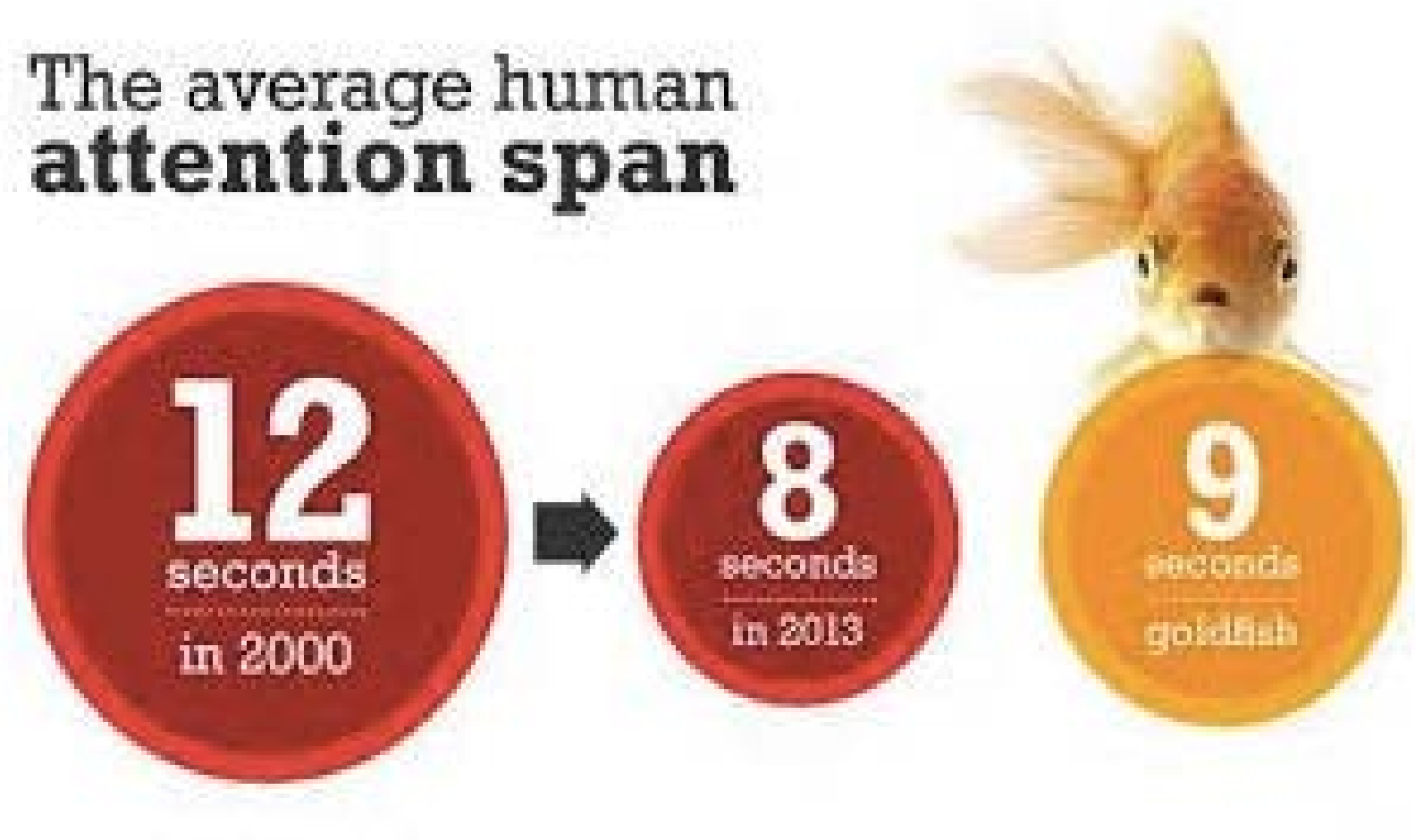
Smarter than baby boomers and way more ambitious than Millennials: universities don't seem to be considering the impact of Gen Z

Change is coming and this new generation of students is leading it. Photograph: Alamy

Characterics **Z** Generation

- Born after 1995
- **Independent** et responsible
- Entrepreneurial
- Favour **applied and practical approaches** to learn
- Use **social network** for research
- Communicate with **images**
- Are very **connected**….

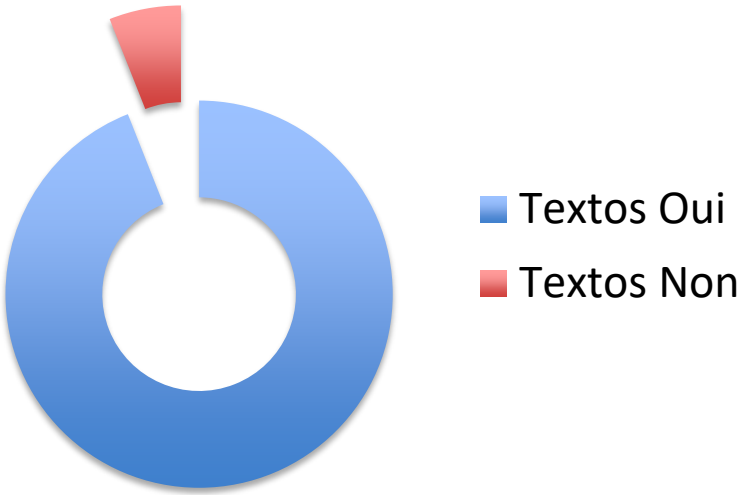
Source: Enquête Forbes



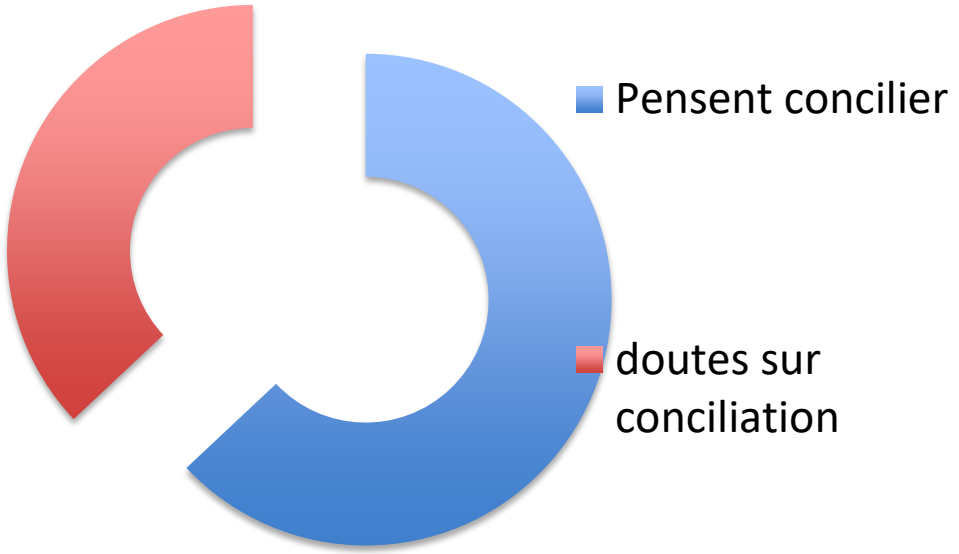
Source probably non existing

« multitaskers »

94% recieve and send SMS

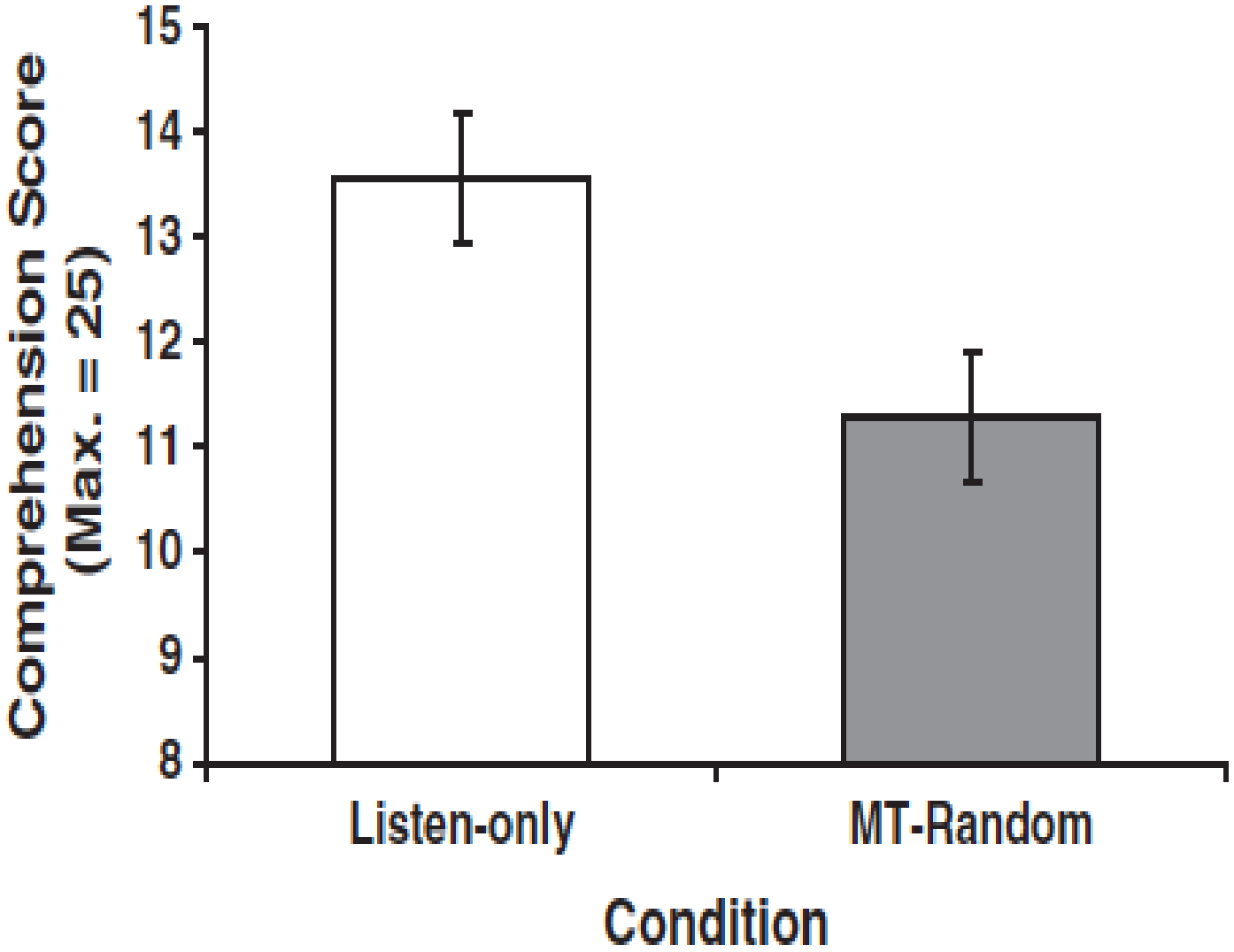


63% think they can concilitate sms and lectures



Clayson & Haley 2016

Real effects on Learning



Pashler 2013

✓ Technological

- Digital Revolution

Digital Revolution

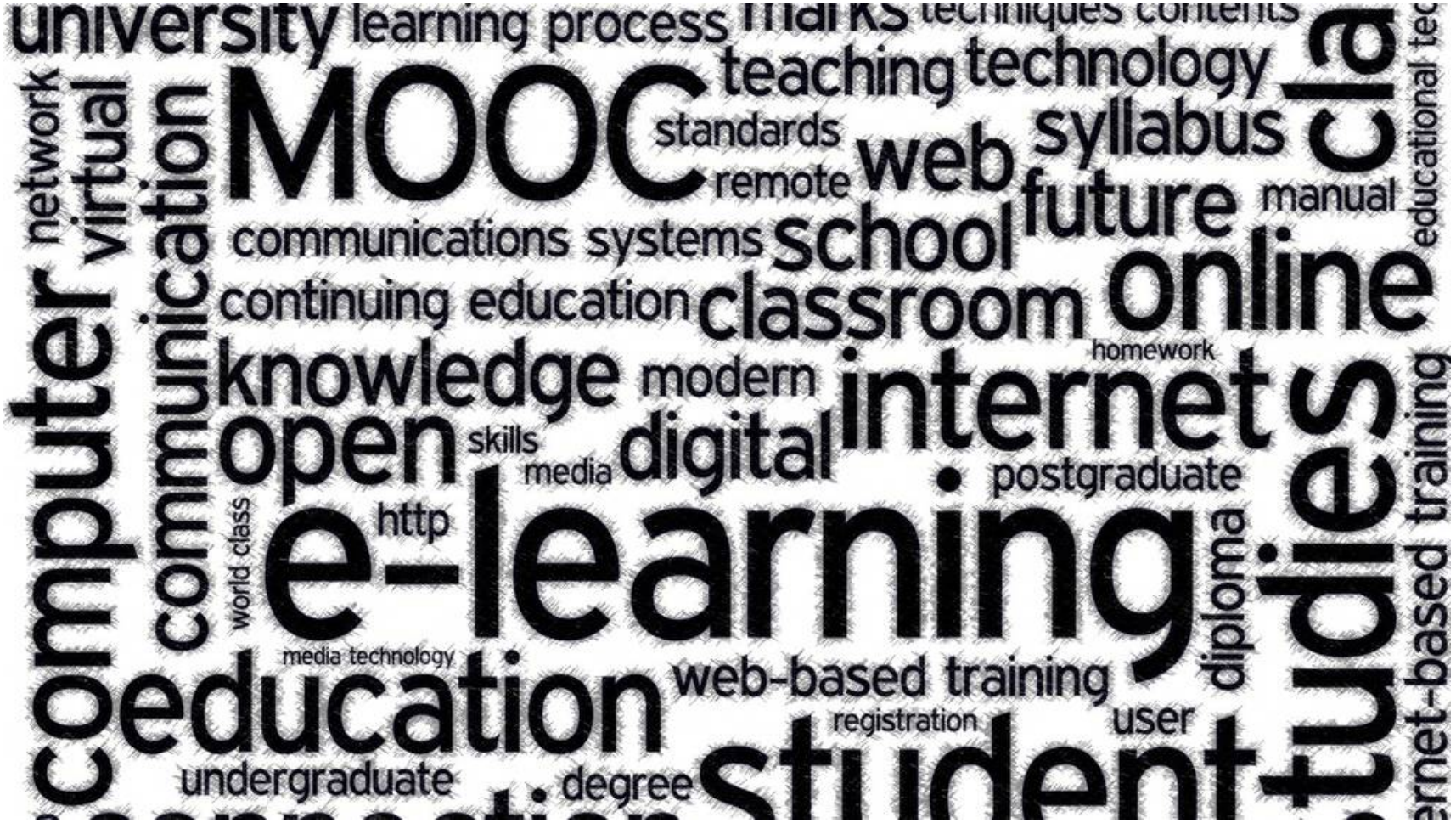
WIKIPEDIA
The Free Encyclopedia

"There are Wikipedia sites in 300 different languages, with 46 million articles accessed by 1.4 billion unique devices every single month".

INDEPENDENT

David Barnett 18.02 2018

New opportunities for Teaching & Learning

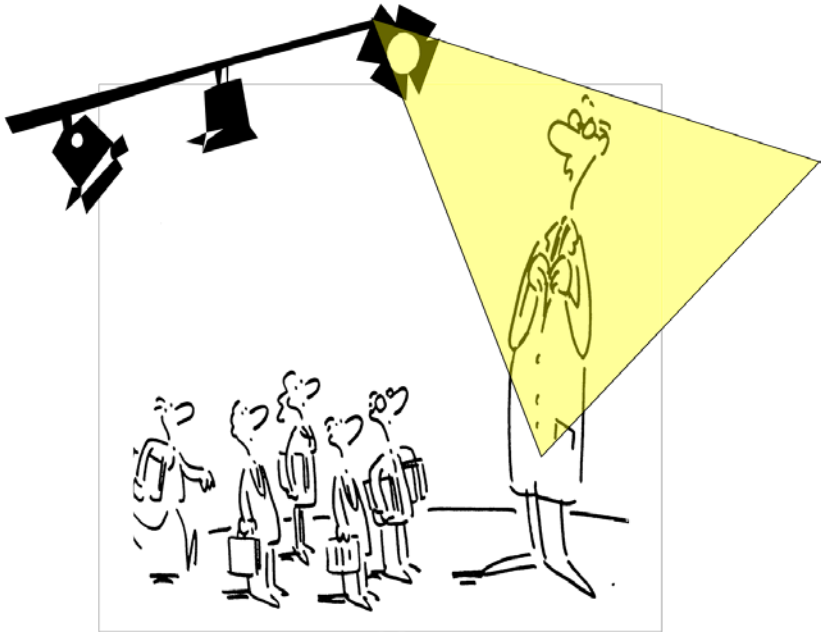


- ✓ Which main evolutions ?
- ✓ What challenges
- ✓ How to address these challenges

✓ Student centred Teaching and Learning

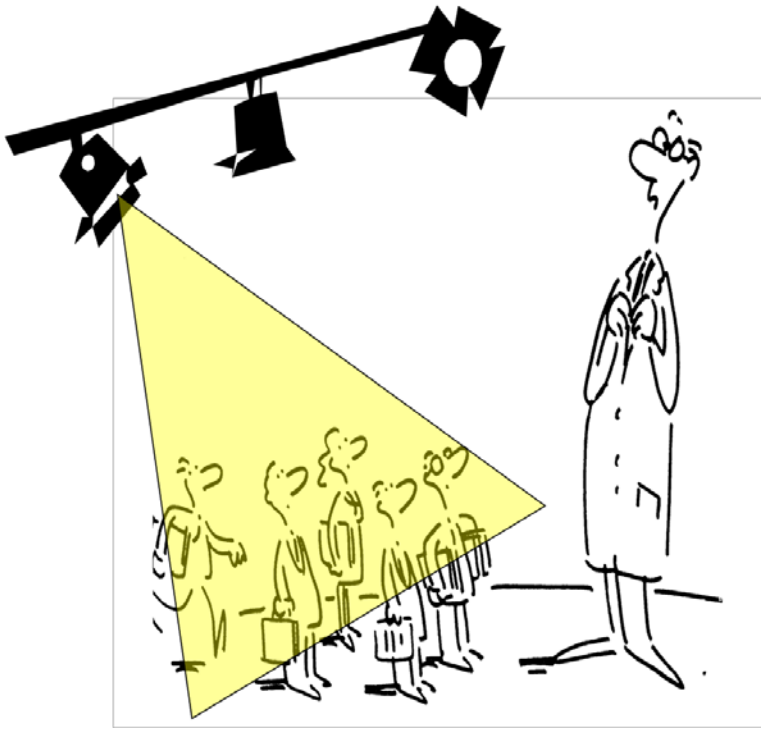
=> Focus on Learning outcomes

Shift focus from …



- Focus on Teachers
- Focus on Content

… to an other Focus

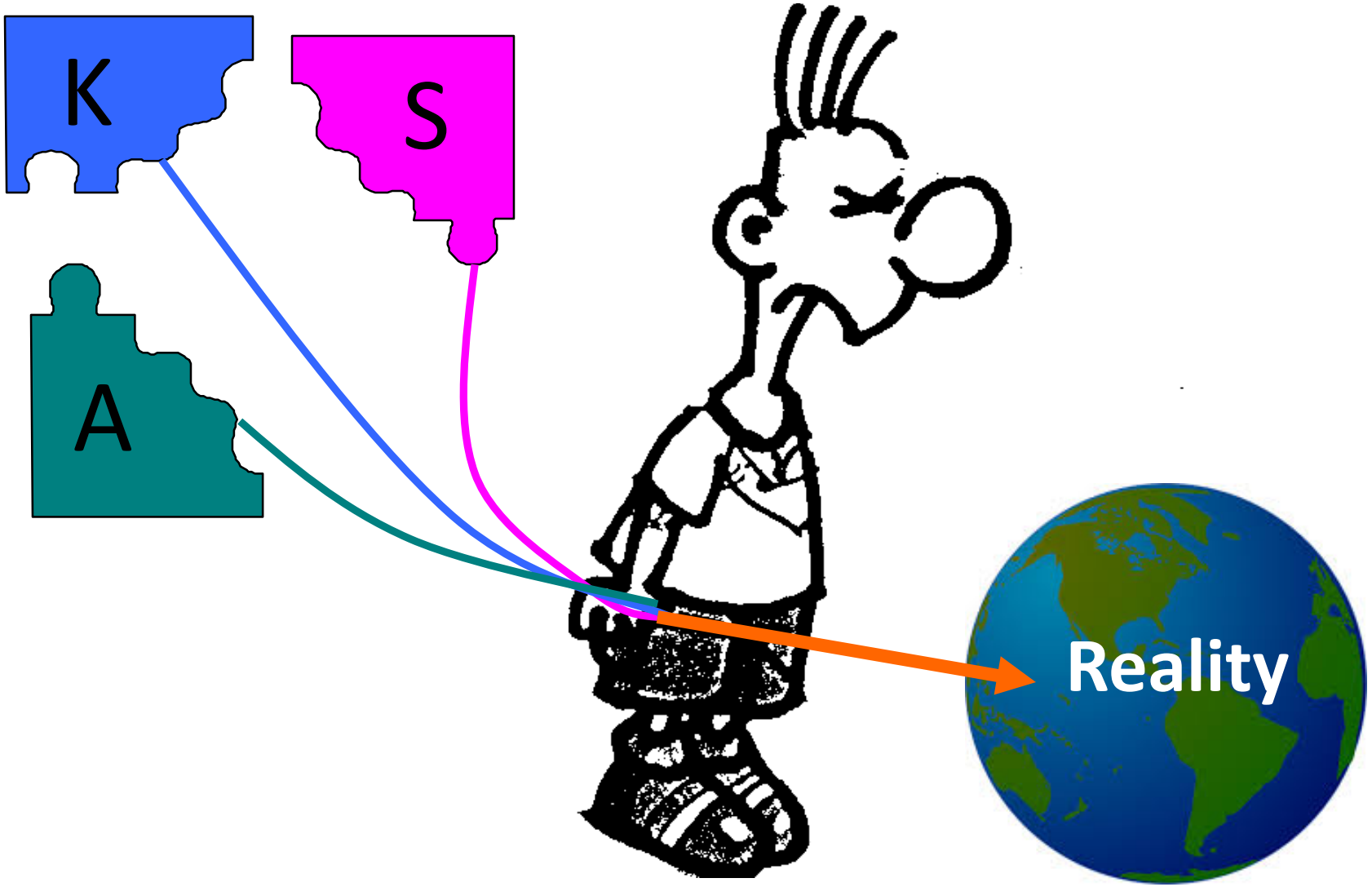


- Focus on Learners
- Focus on Learning outcomes

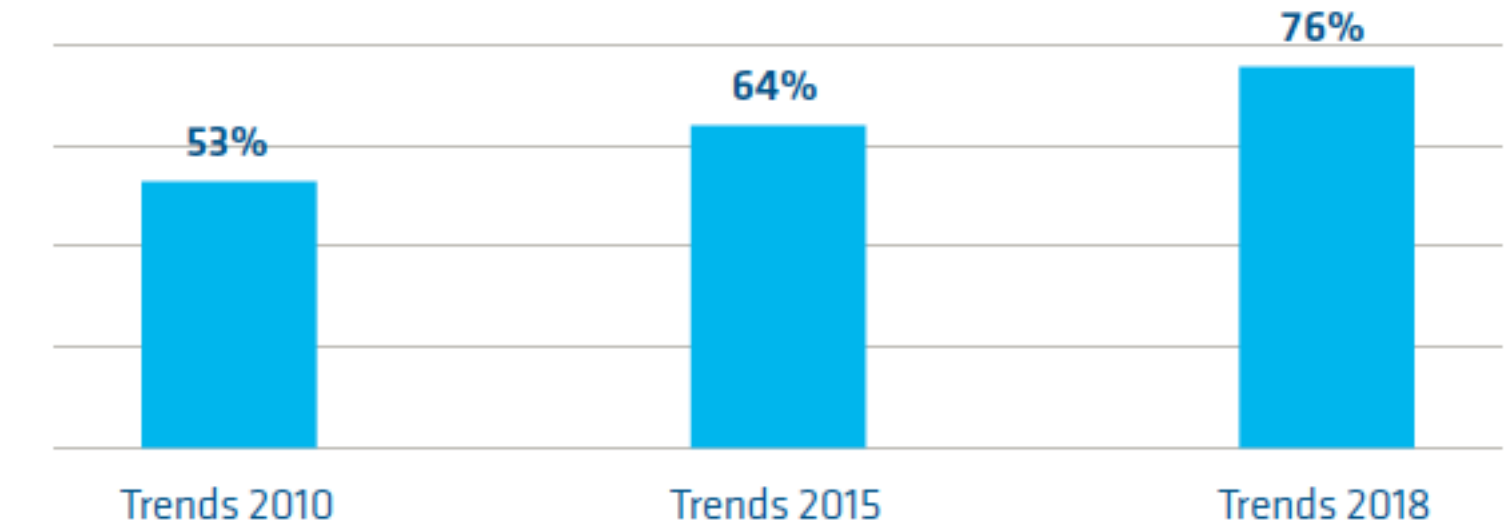
Learning Outcomes

Corner Stone

The integrative logic of competences



Learning outcomes for all courses



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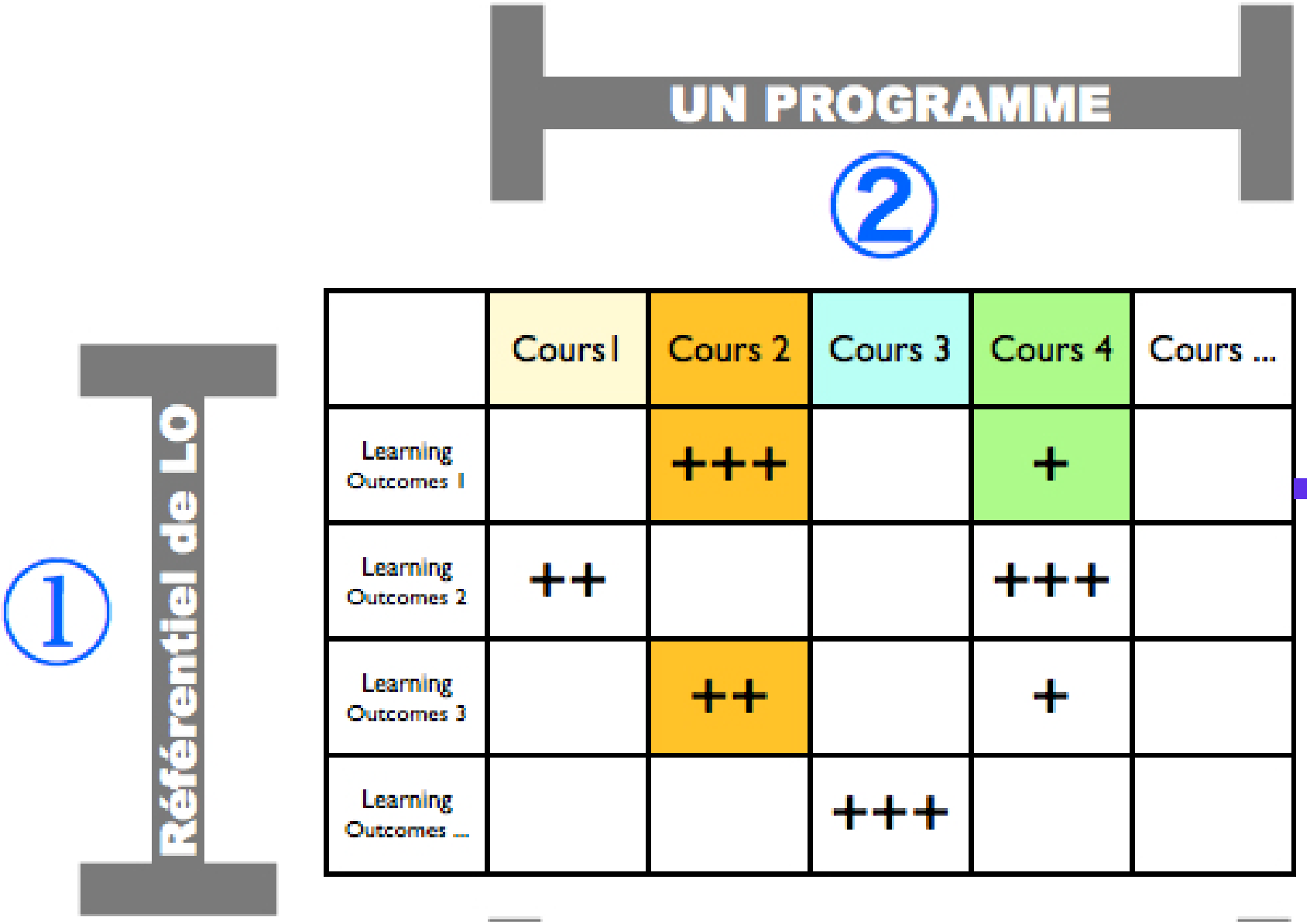
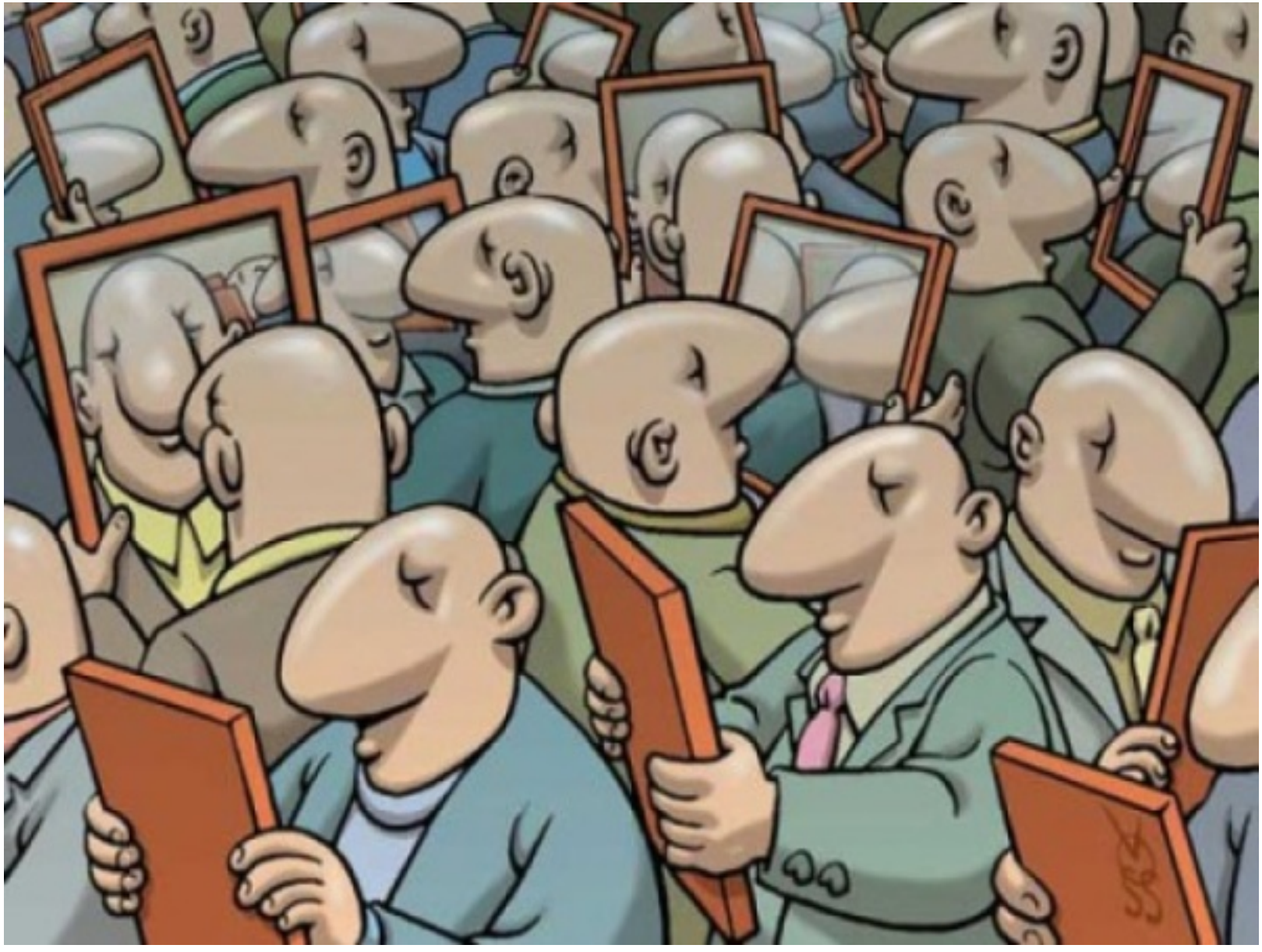
Trends 2018 - 303 HEI's

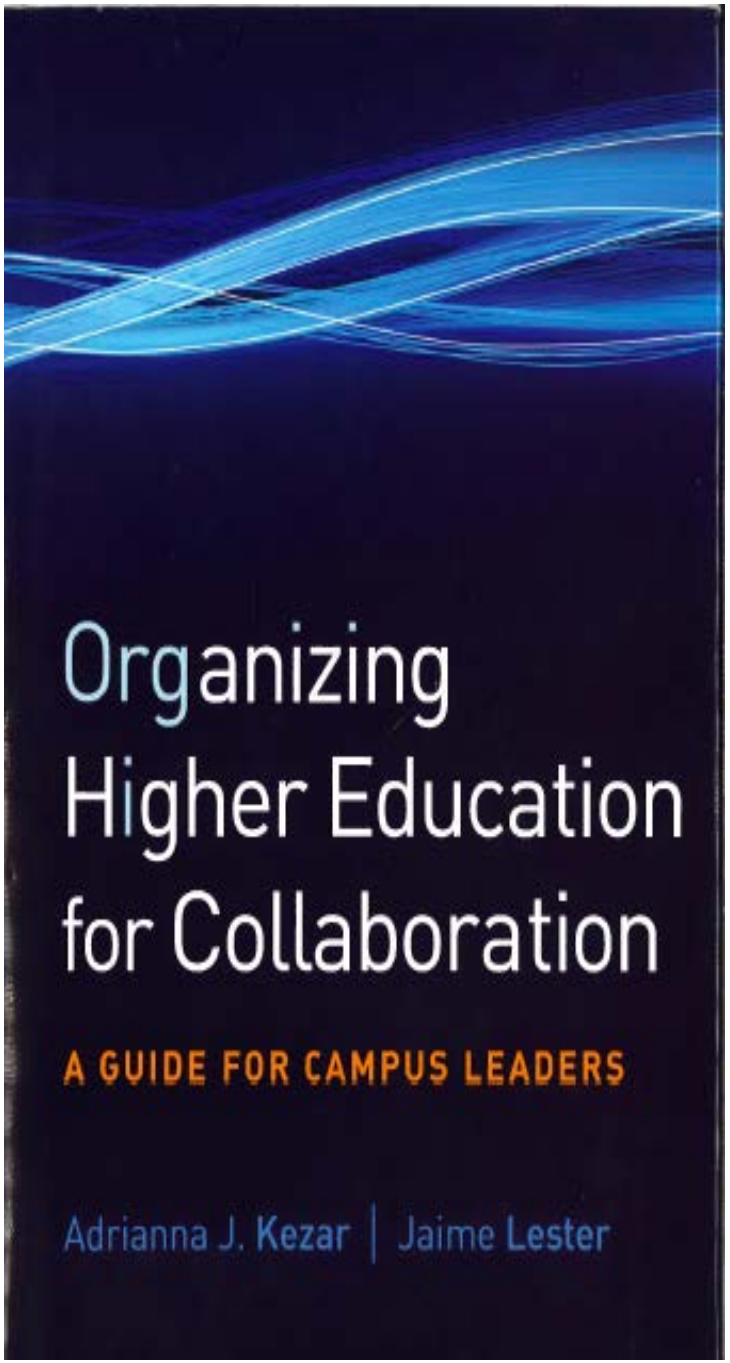
A matricial approach



	Cours 1	Cours 2	Cours 3	Cours 4	Cours ...
Learning Outcomes 1		+++		+	
Learning Outcomes 2	++			+++	
Learning Outcomes 3		++		+	
Learning Outcomes ...			+++		

Programme approach means Team work



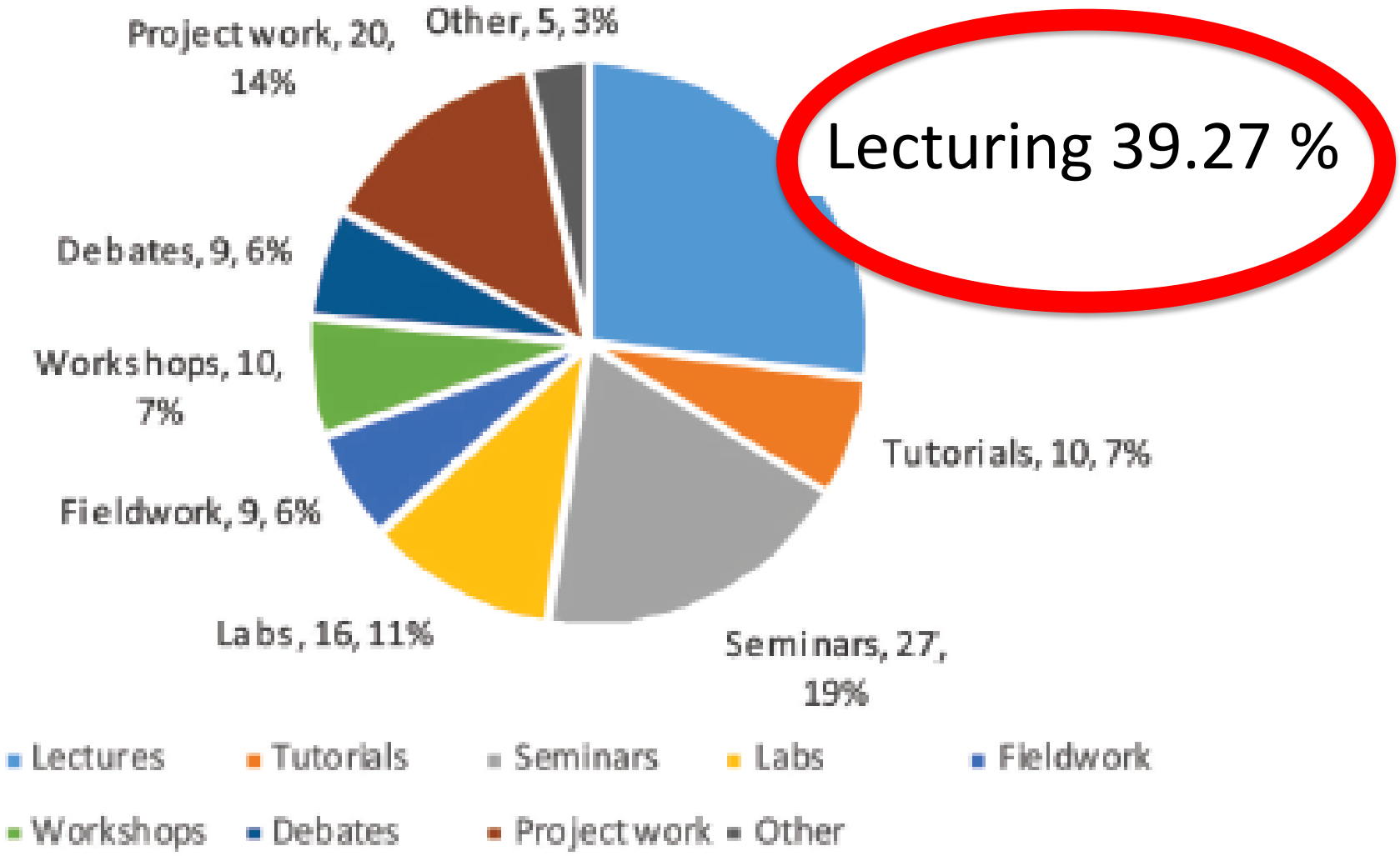


»collaboration has moved from an intuitively good idea to an imperative because of the overwhelming evidence of it's benefits «

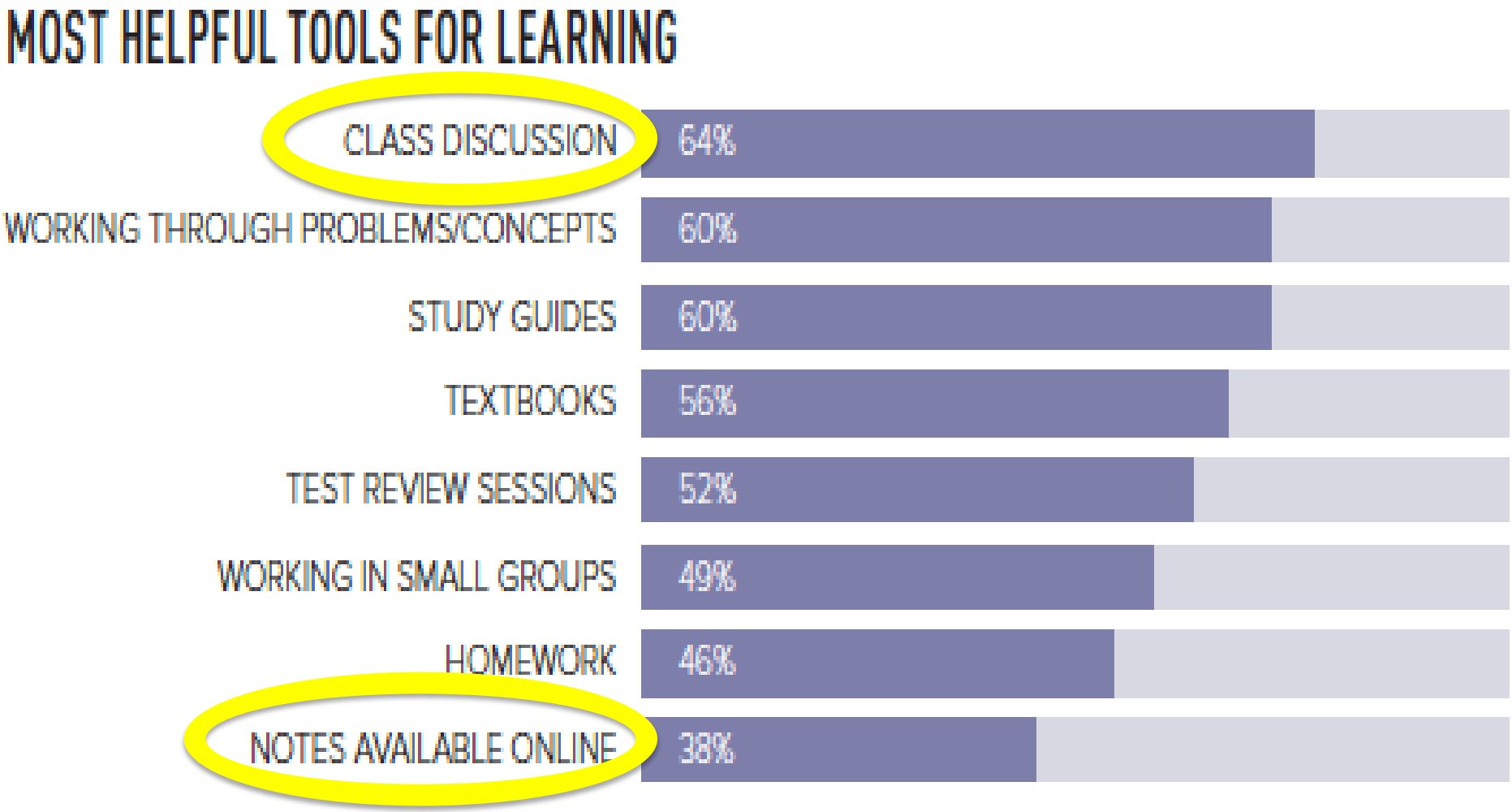
✓ Massification and new profiles

=> Diversification & active learning

Lecturing remains the main strategy

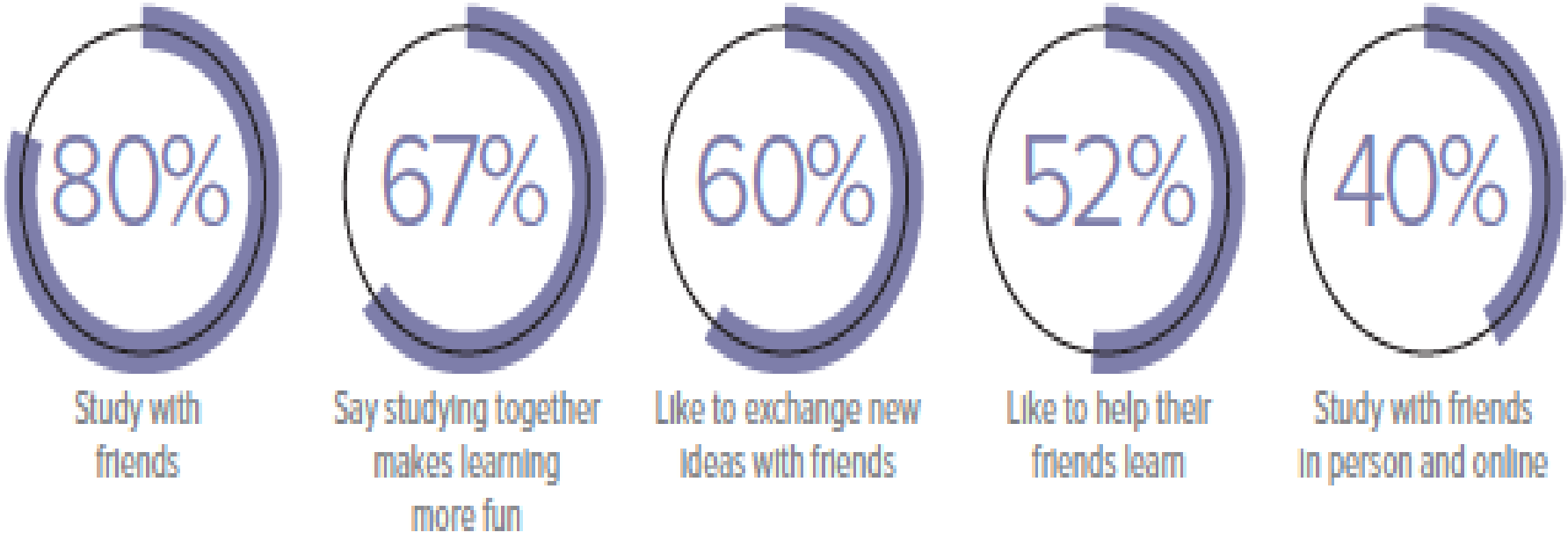


Source: ESU Survey SCTL 2015



Source: Barnes & Noble 2016

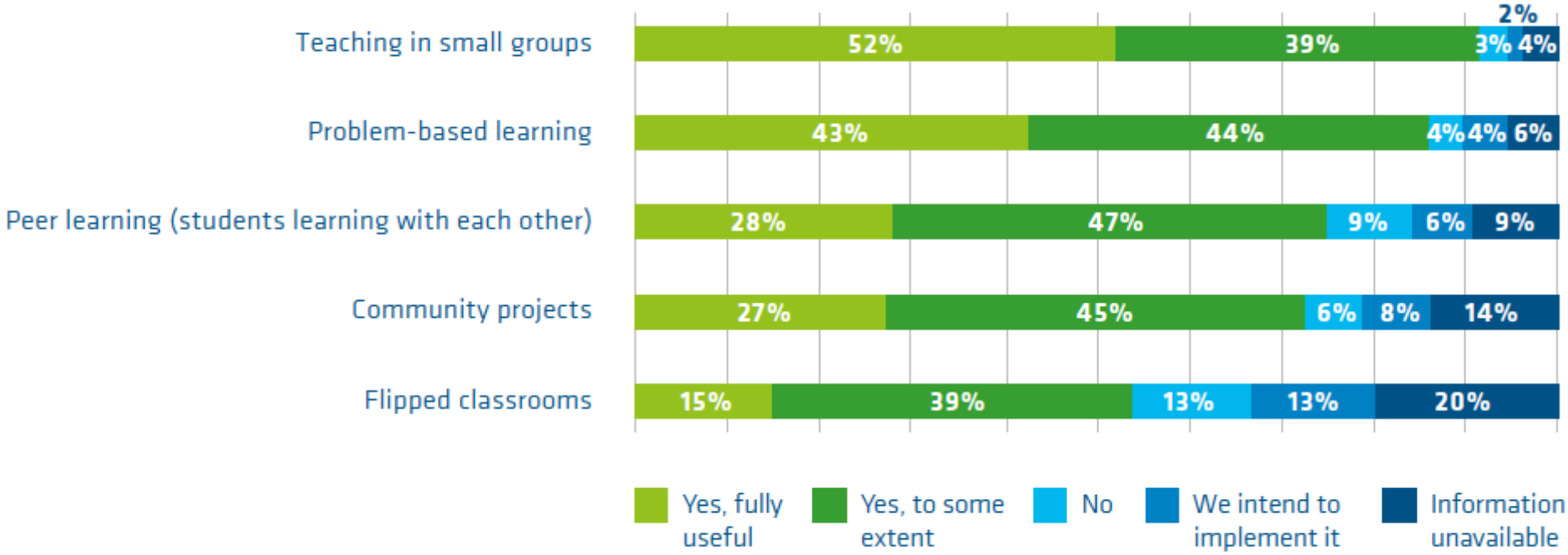
STUDENT STUDYING PREFERENCES



Respondents cited Skype as the top online tool to study with friends.

Source: Barnes & Noble 2016

Useful approaches to enhance students learning



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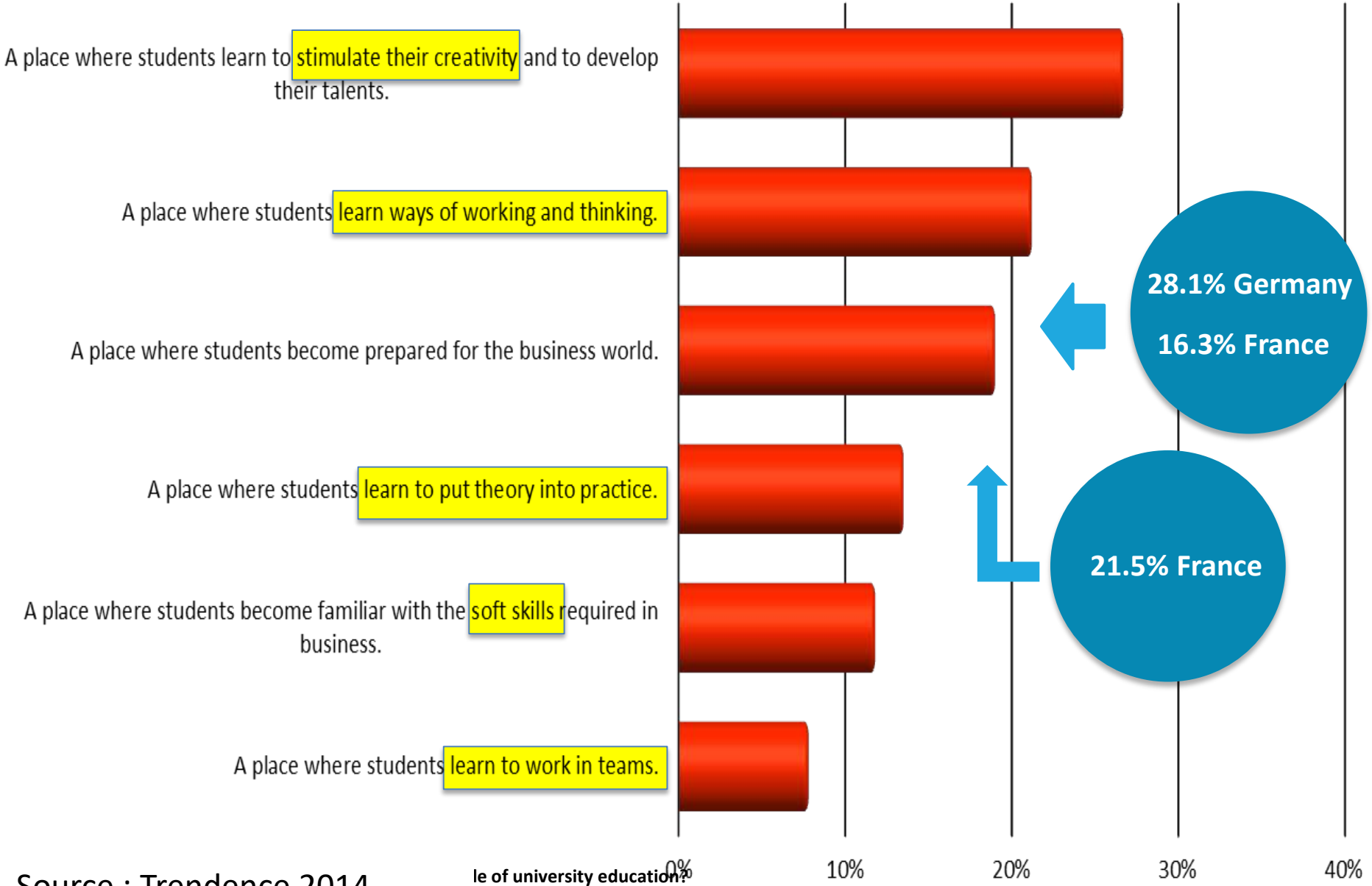
- ✓ Employability of graduates

  => opportunities to acquire 21st century skills

What recruiters are looking for



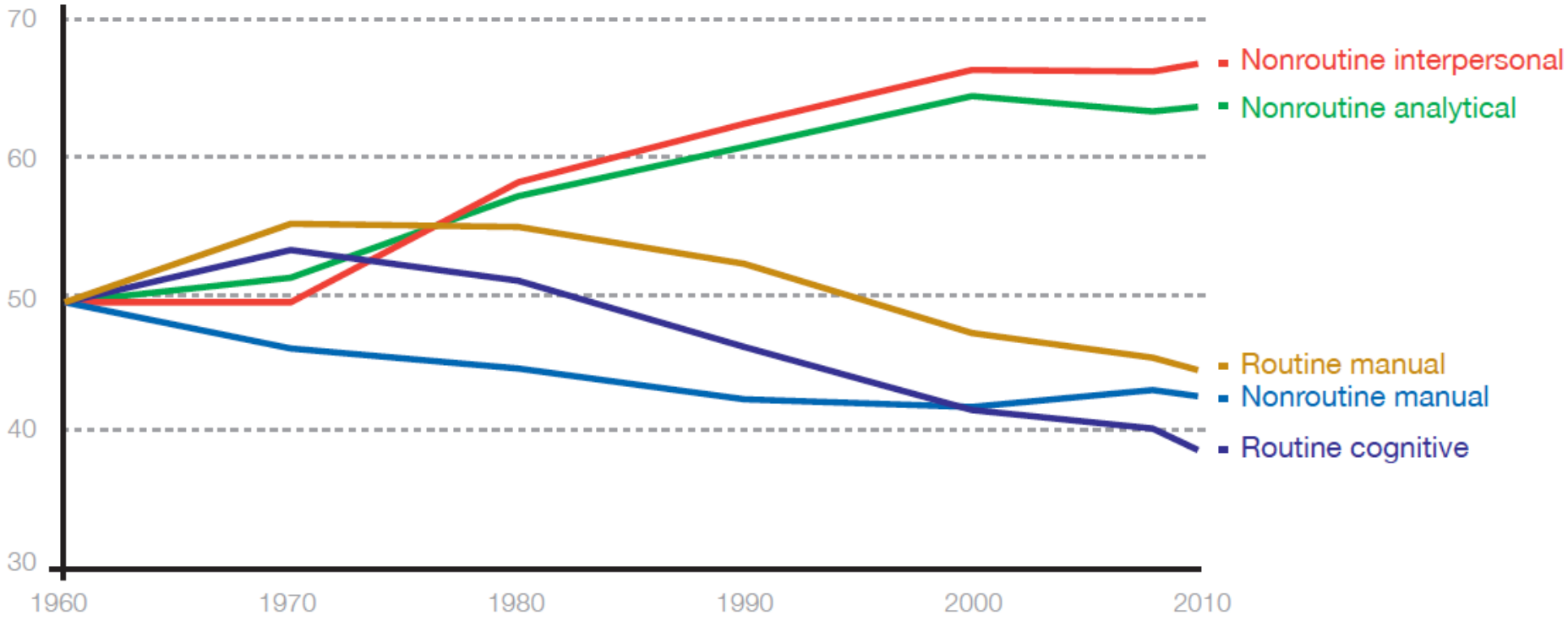
Source : Trendence 2014

le of university education?

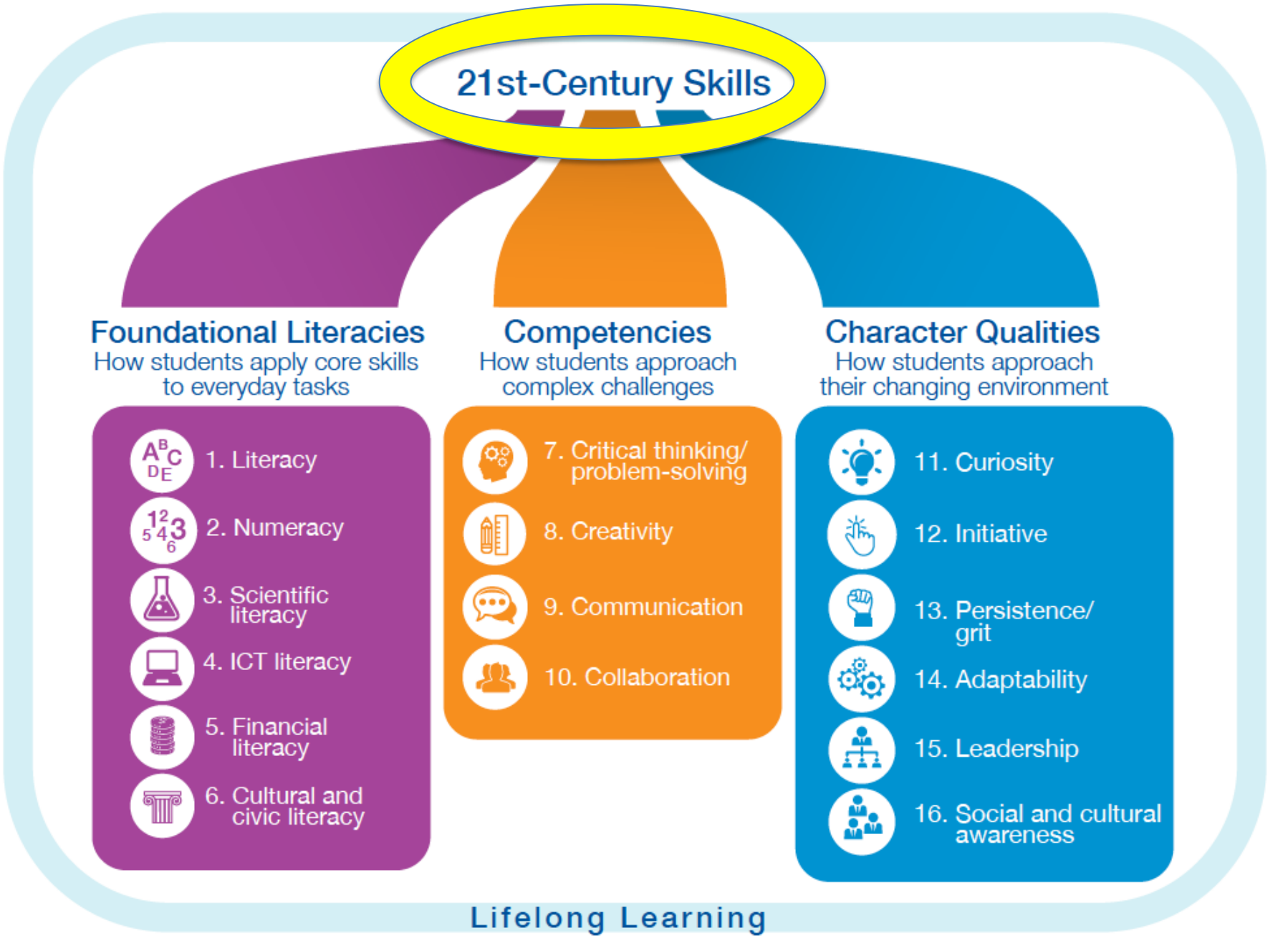
Employers expectations

Creativity
Reflexivity
Ability to solve problems
To know how to work in teams
To know how to learn & LLL
To be able to communiate
Entrepreneurship competences
Strong knowledge and ability to use it
Cultural understanding
« Technology literate »

Labour Market increasingly demands higher order skills



Source WEF 2015



Source WEF 2015

✓ Digital Revolution

=> Focus on “Pedagogical Added Value”

The MOOC revolution: Status and next steps

Andrew Ng
Stanford University & Coursera

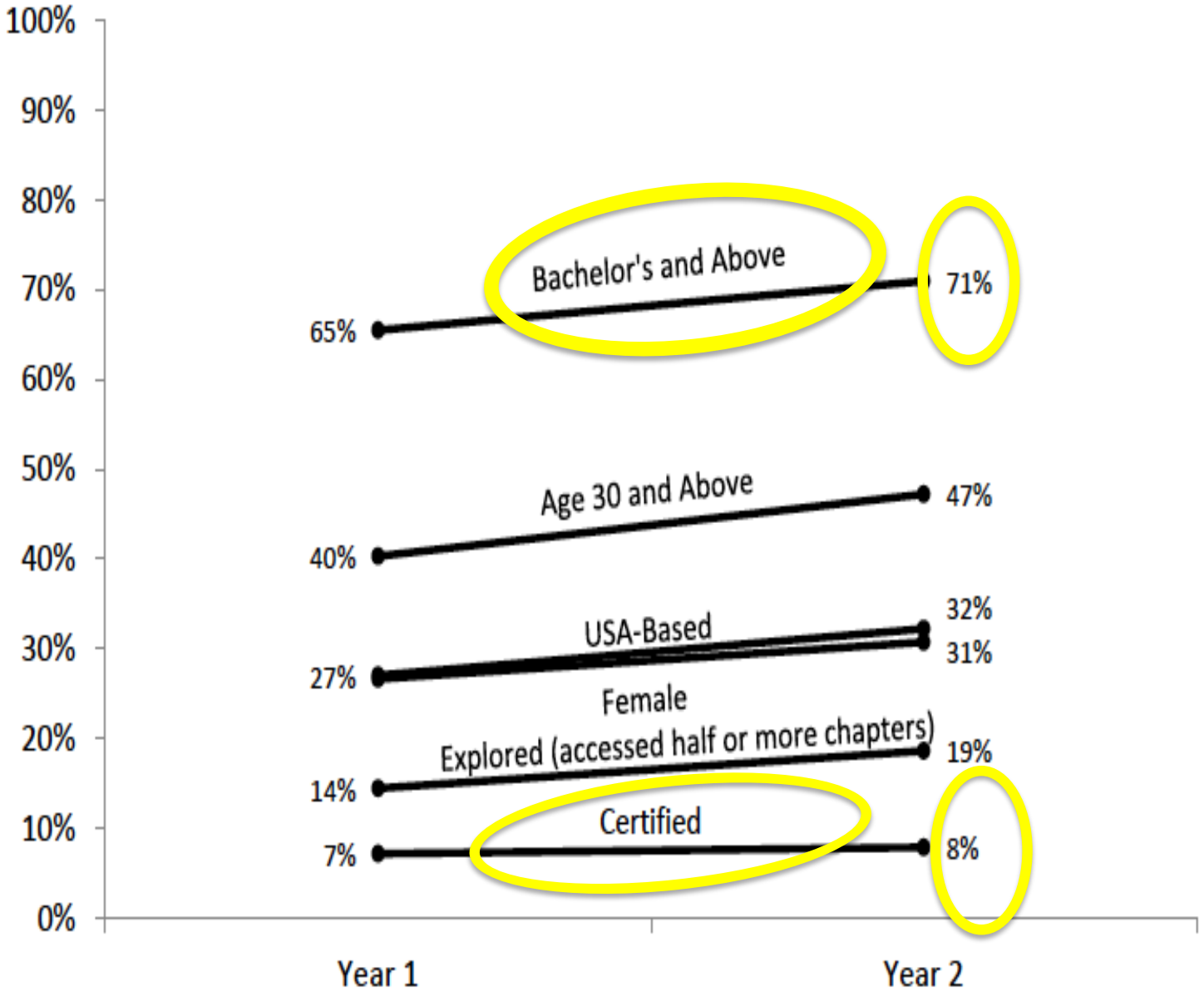
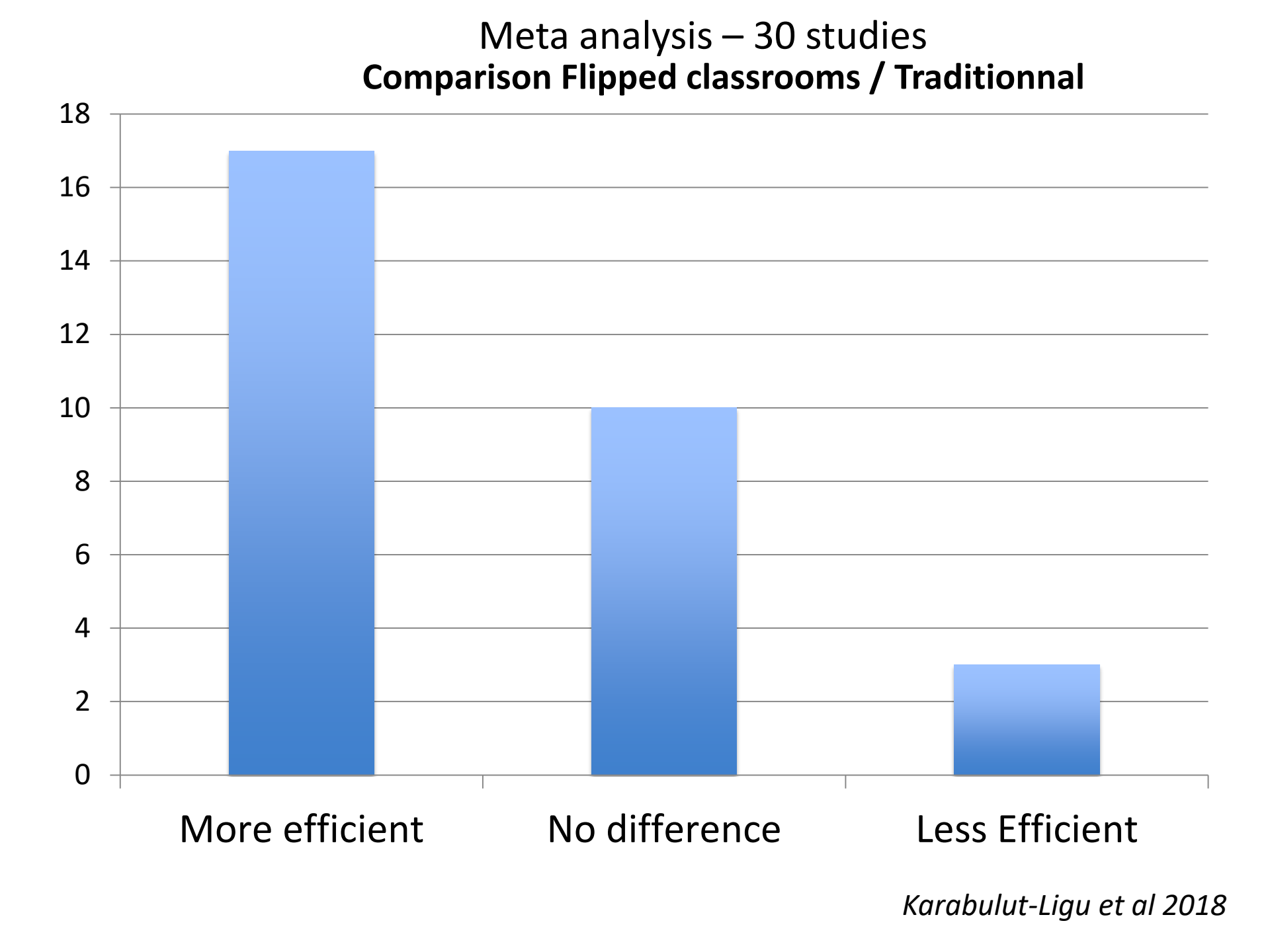


Figure 1. **Trends in HarvardX and MITx open online courses, Year 1 (2012-2013, 604,932 participants, 16 courses) to Year 2 (2013-2014, 867,213 participants, 48 courses).**

THE FLIPPED CLASSROOM REVOLUTION

COMING TO A BRAIN NEAR YOU


Meta analysis – 30 studies
Comparison Flipped classrooms / Traditionnal
18
16
14
12
10
8
6
4
2
0
More efficient
No difference
Less Efficient
Karabulut-Ligu et al 2018

Enhancing Learning and Teaching at European Higher Education Institutions

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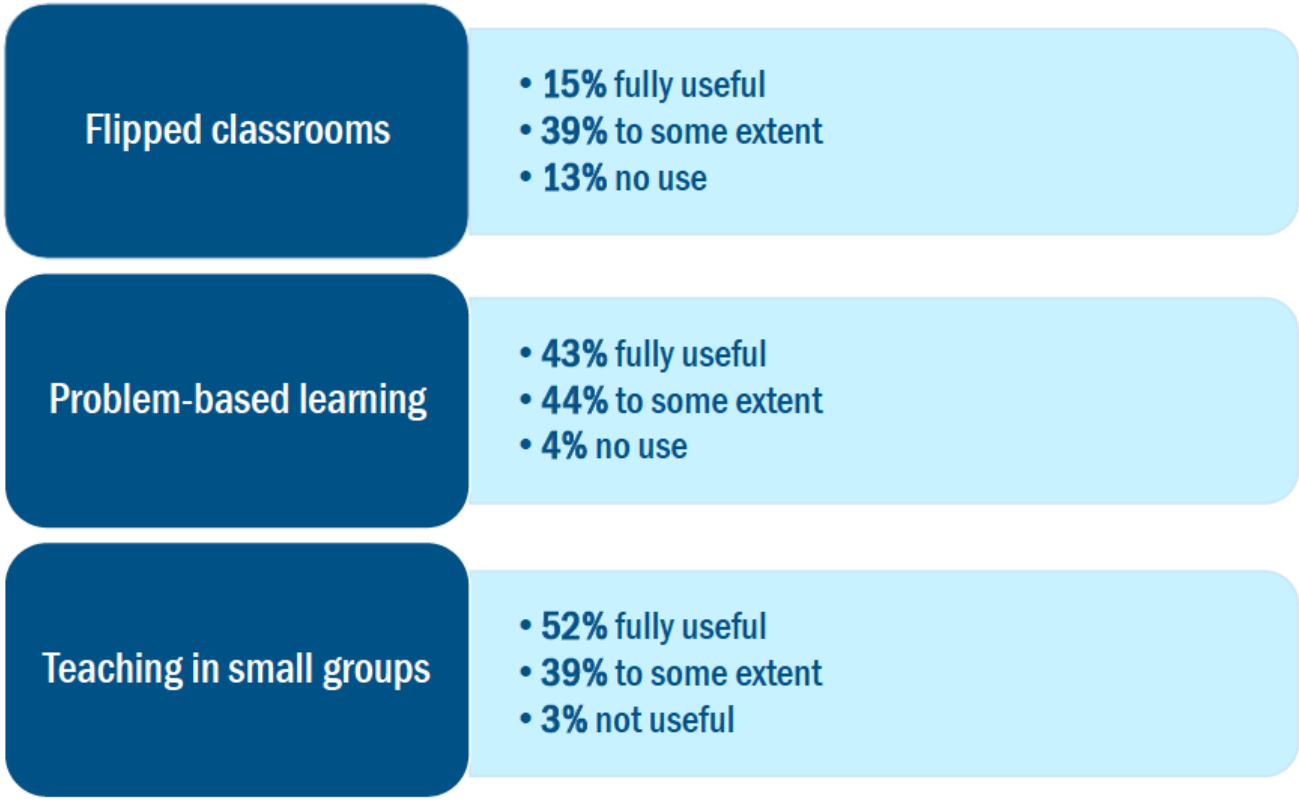
Changing approaches in L&T



Trends 2018. Q. 24

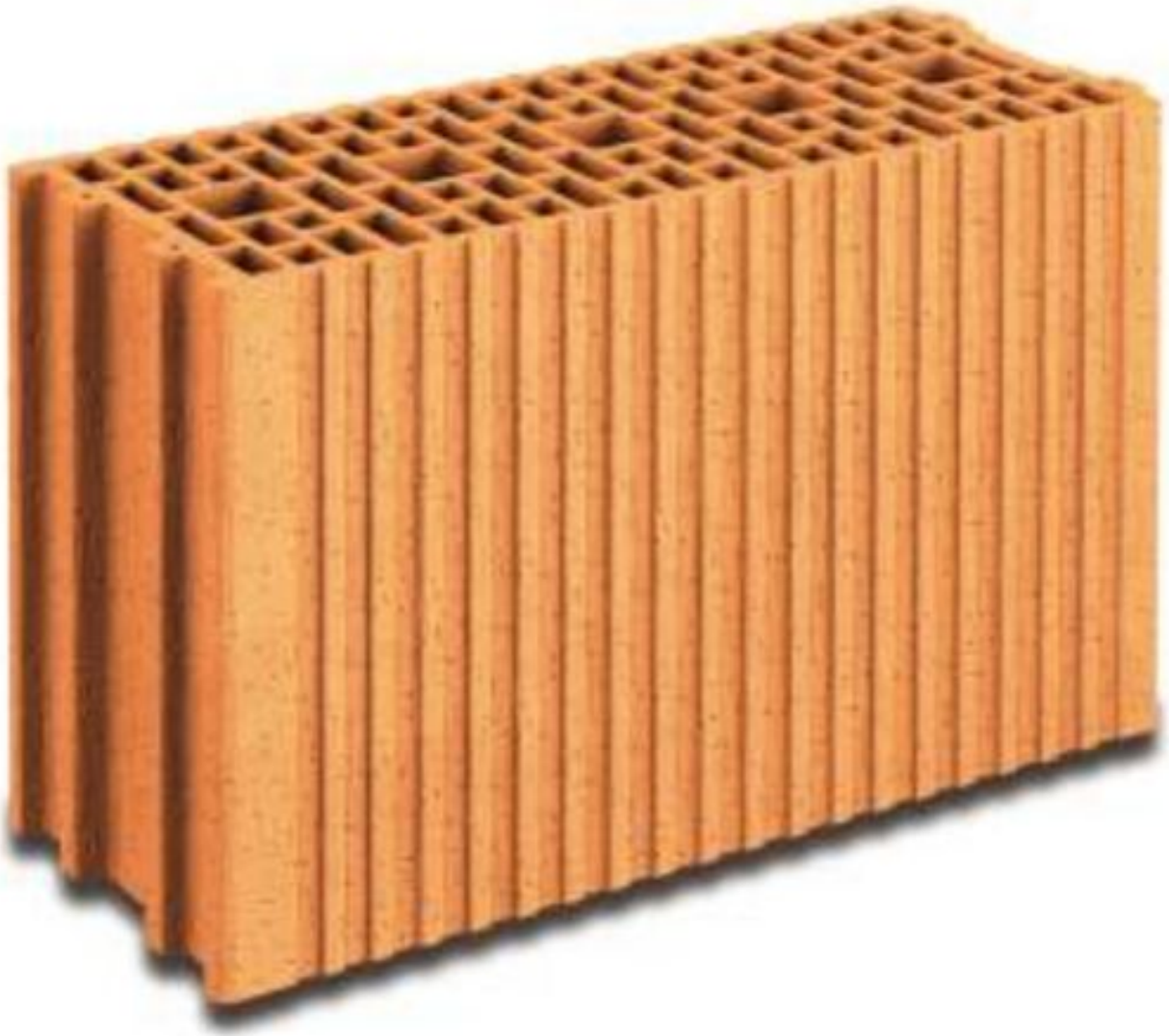
Trends 2018 - 303 HEI's

No one size fits all In the use of Technology for Teaching

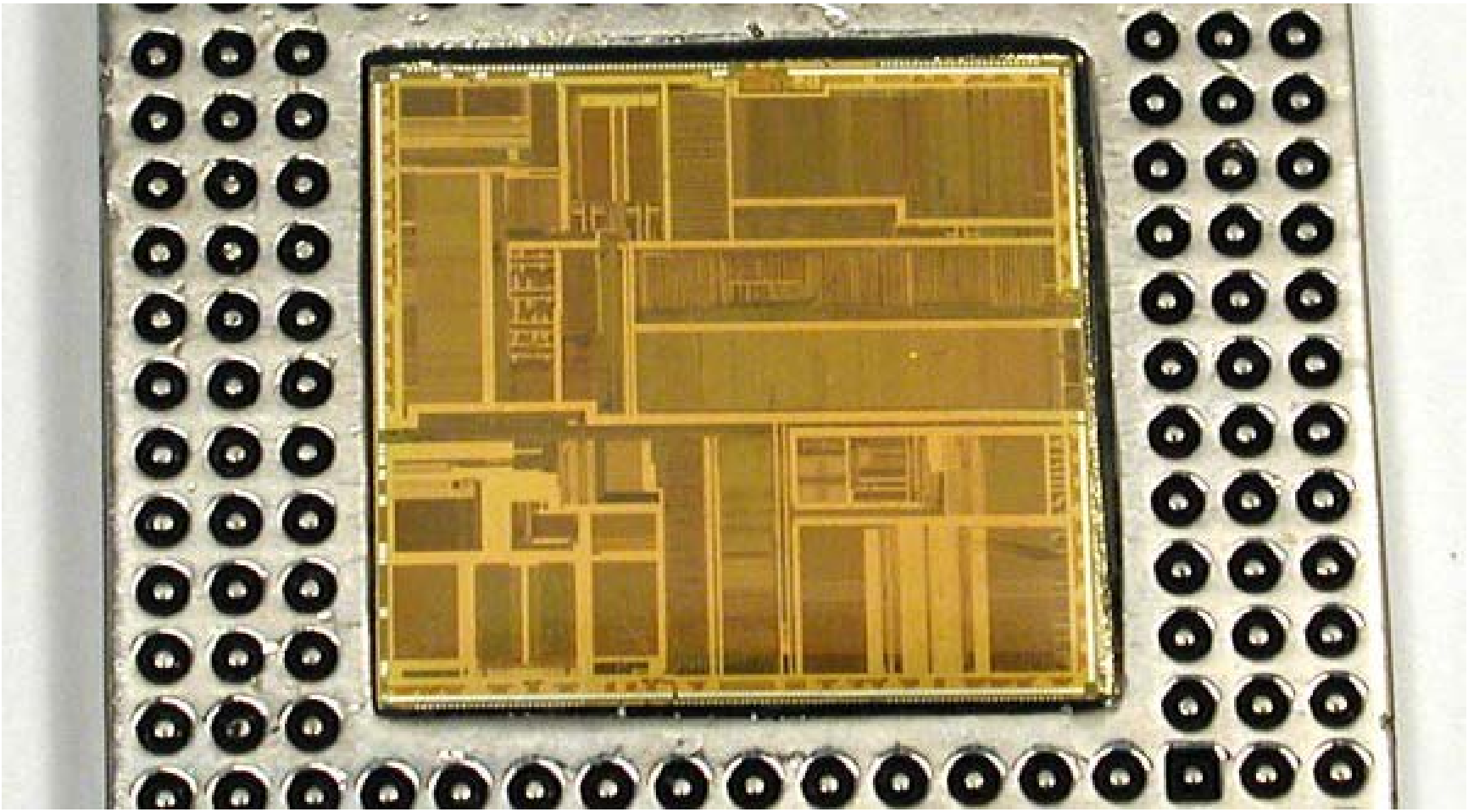
The main question :
The pedagogical Added Value

- ✓ Which main evolutions ?
- ✓ What challenges
- ✓ How to address these challenges

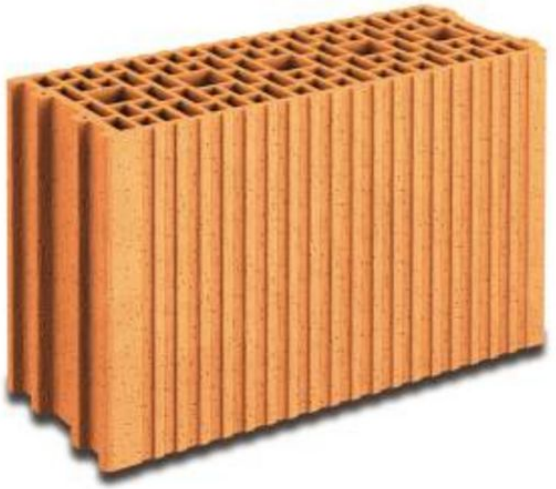
Which object do you most spontaneously relate to teaching ?

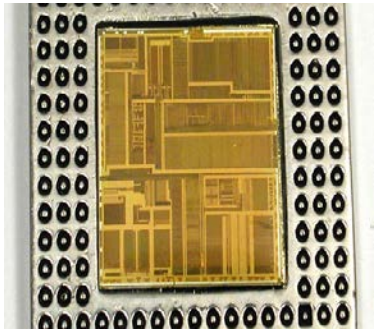



U.N.O
SPORTS
NO 9



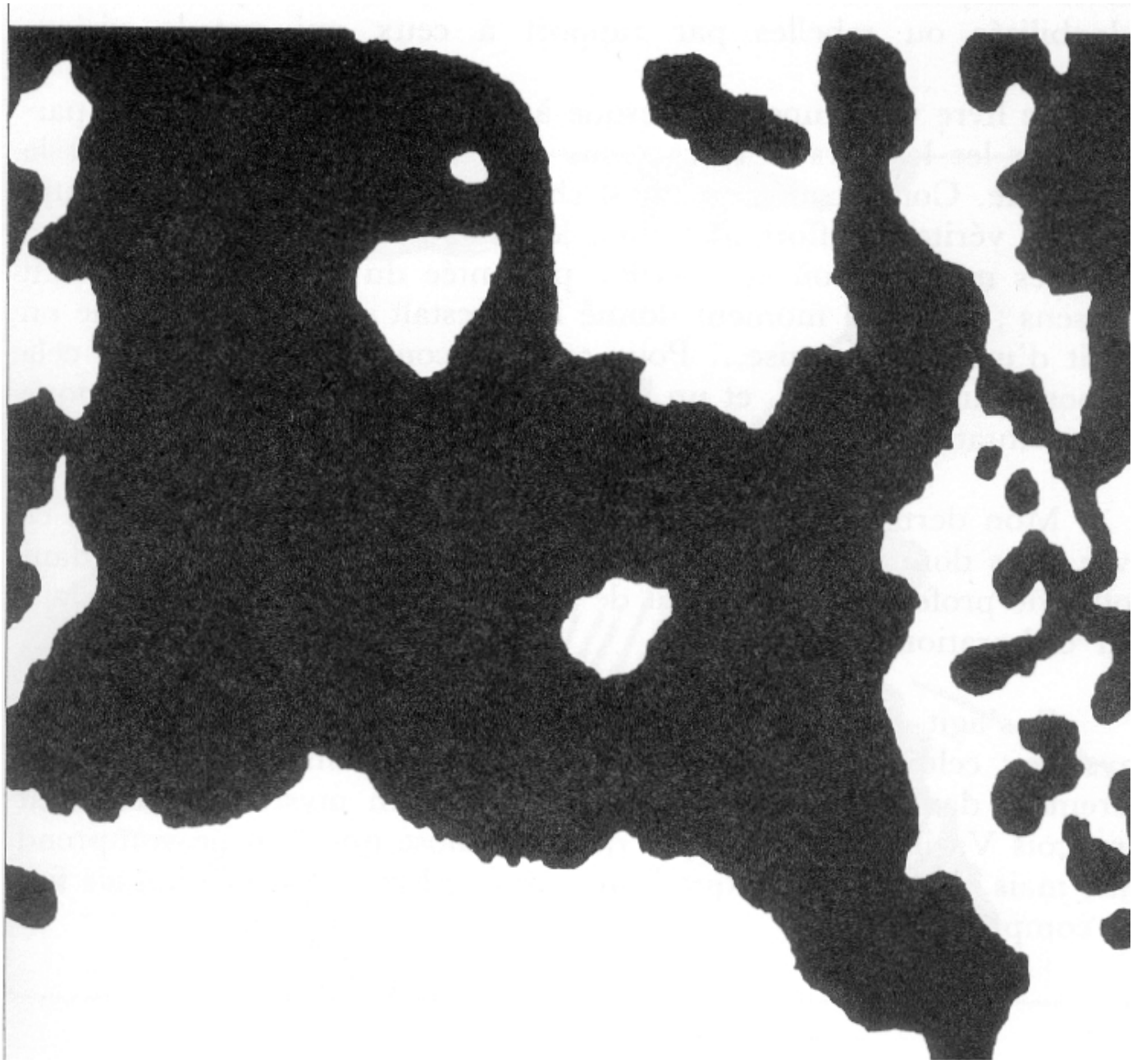
Which object do you spontaneously link with « teaching » ?

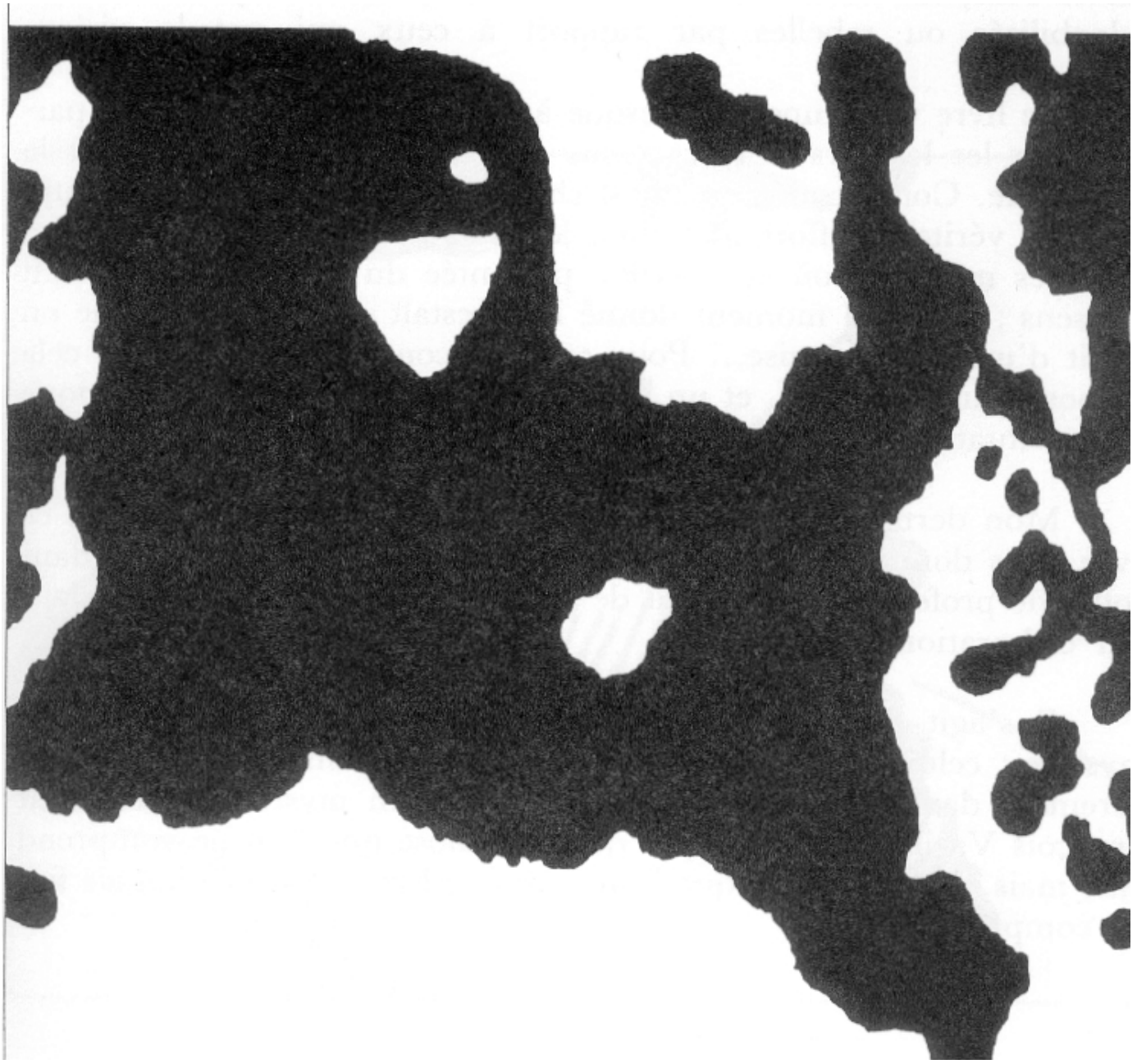


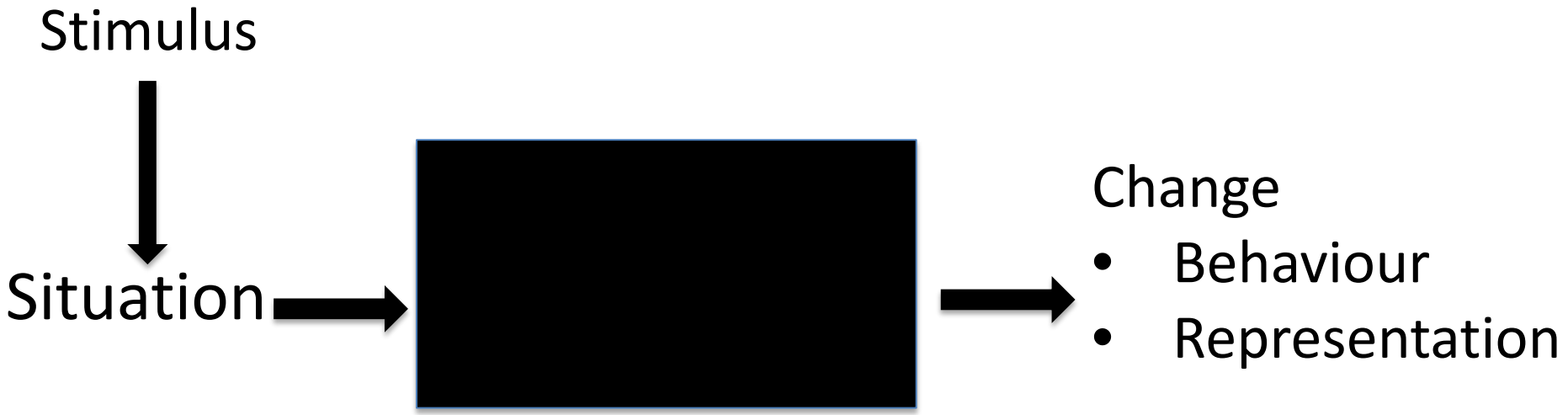


Change

- Behaviour
- Representation

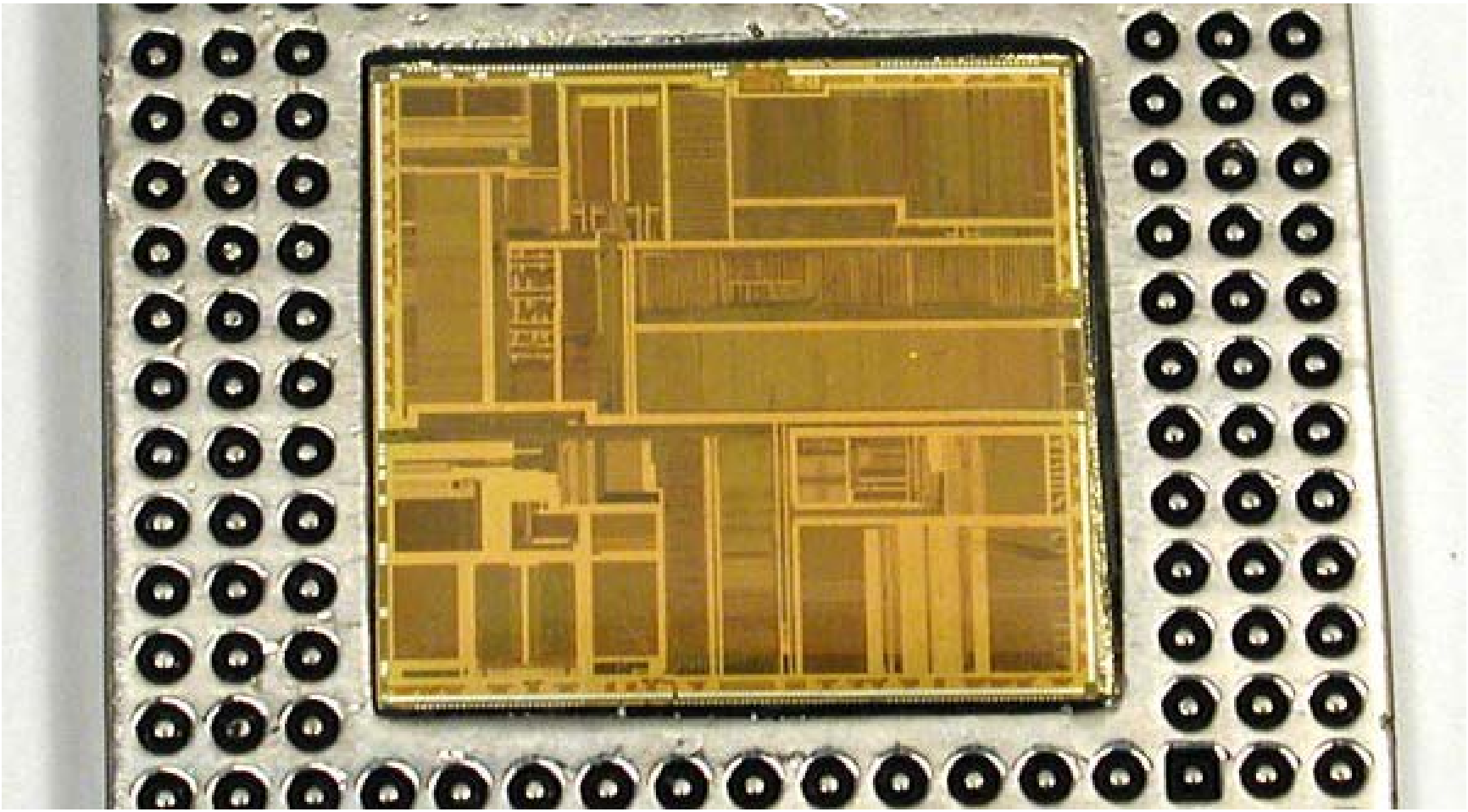


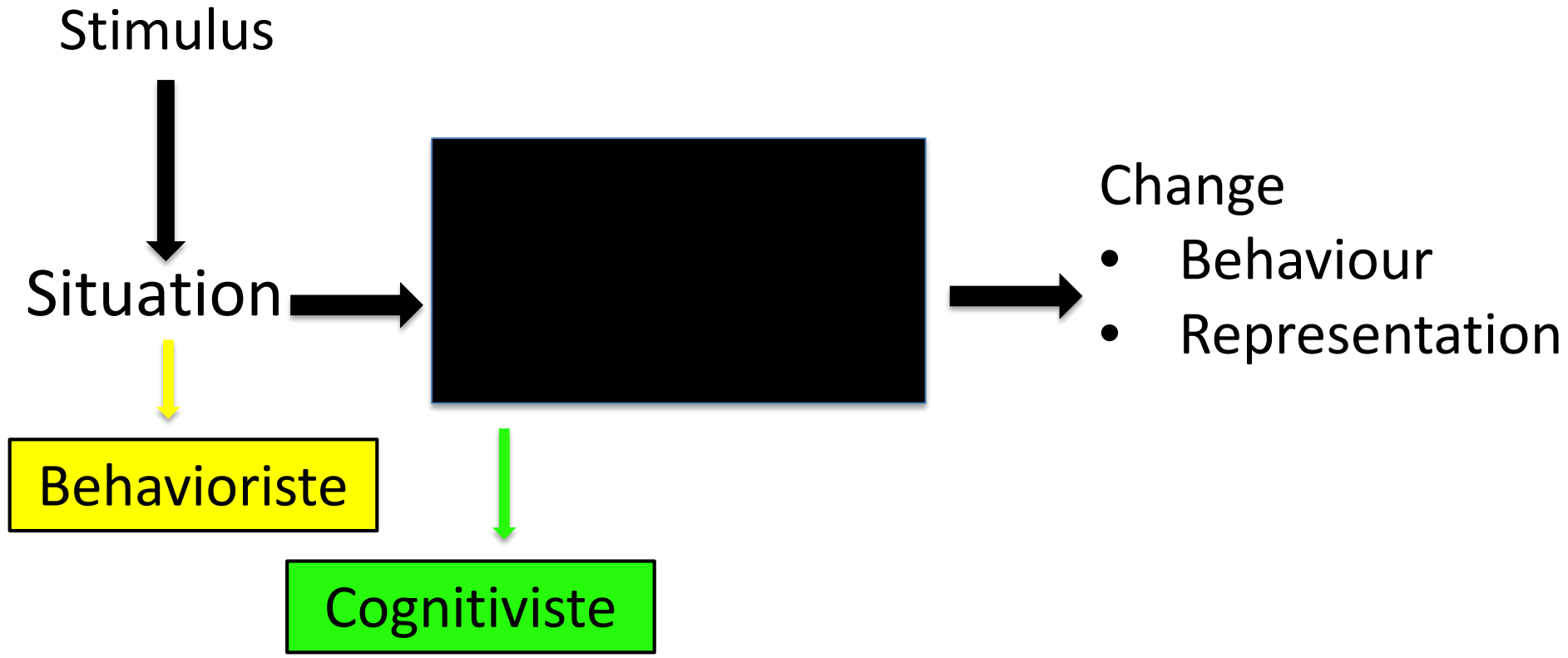



Stimulus
Situation
Change
• Behaviour
• Representation


FURNIER


Stimulus
Situation
Behaviourist
Change
• Behaviour
• Representation



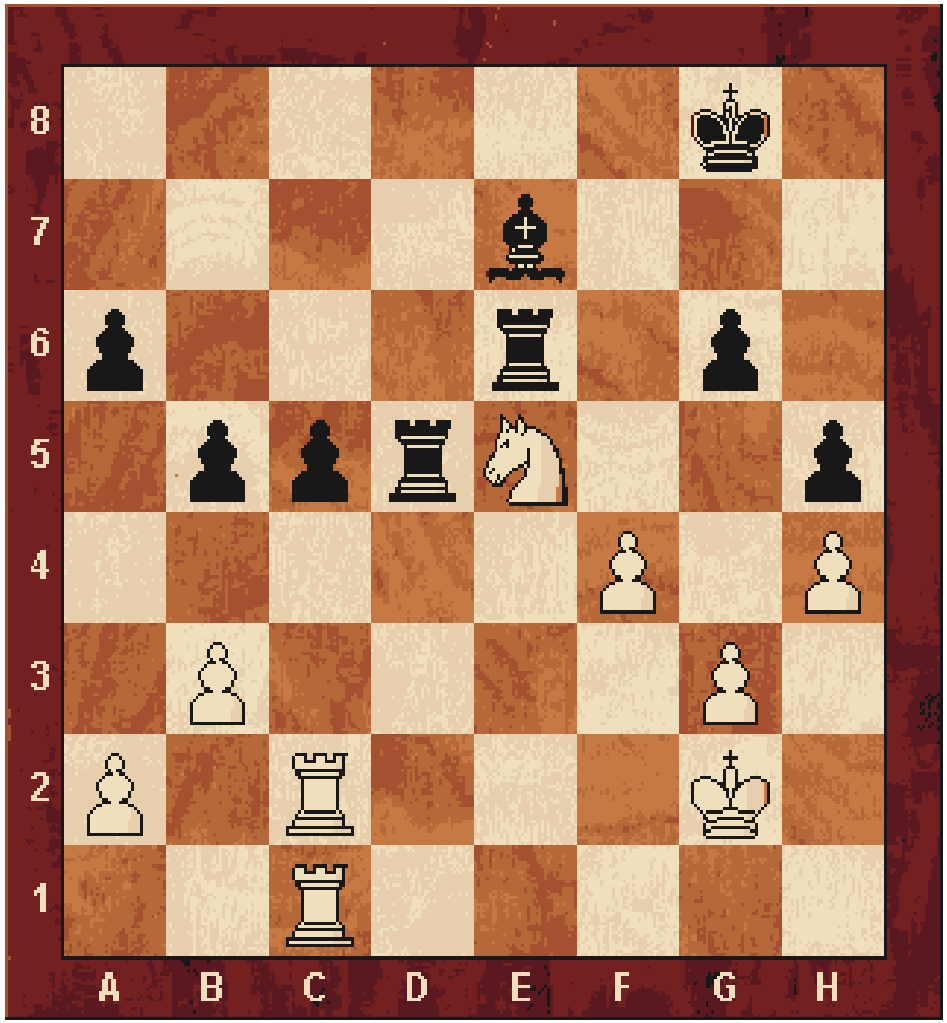

Stimulus
Situation
Behavioriste
Cognitiviste
Change
• Behaviour
• Representation

12 13 14

A B C

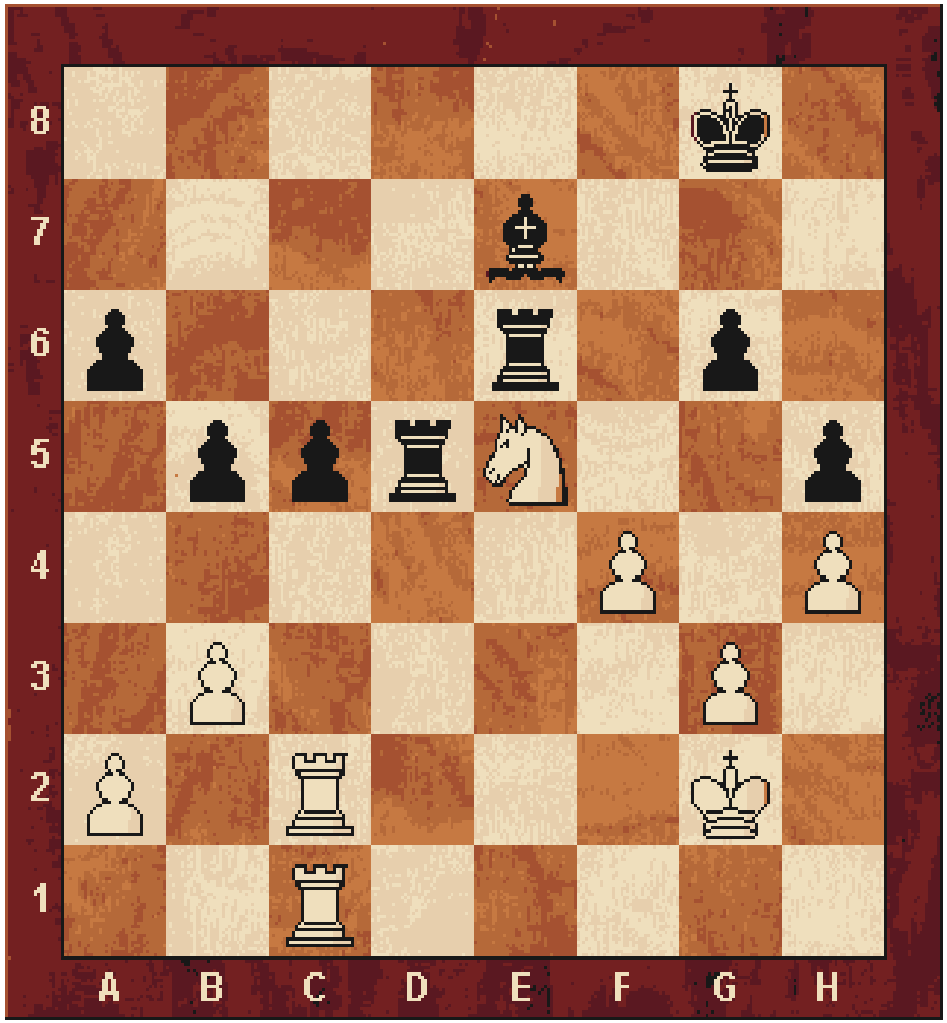
12 13 14

A B C

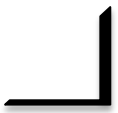


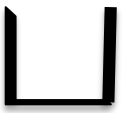
Simon & Chase

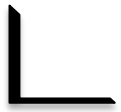
Learning = creating links with what we know



Simon & Chase

1 = 

2 = 

3 = 

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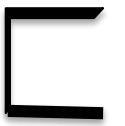
6 = 

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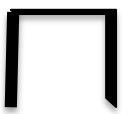
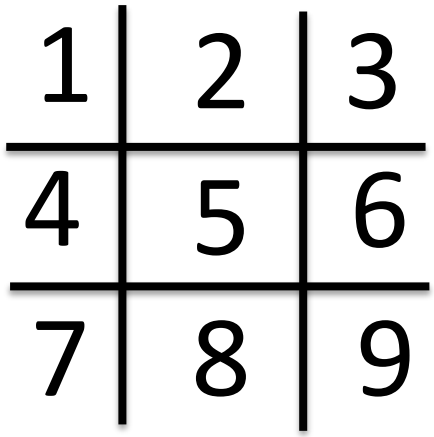
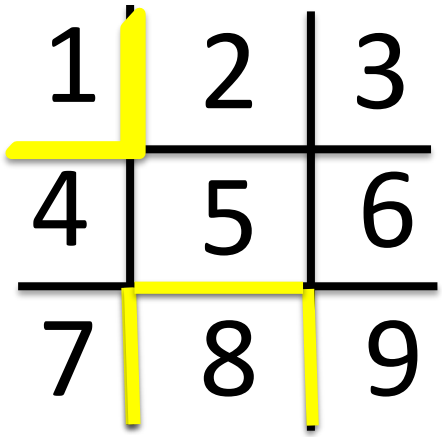
8 = 

9 = 

1 8 5 9 3 2

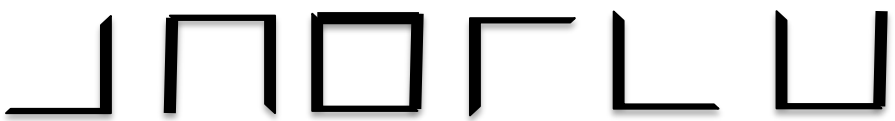

1 2 3
4 5 6
7 8 9


Bouygues 4G
Saisir le code
1
2 ABC
3 DEF
4 GHI
5 JKL
6 MNO
7 PQRS
8 TUV
9 WXYZ
0
Urgence
Annuler



D'après T. Jensen, Aarhus Univ.

1 8 5 9 3 2



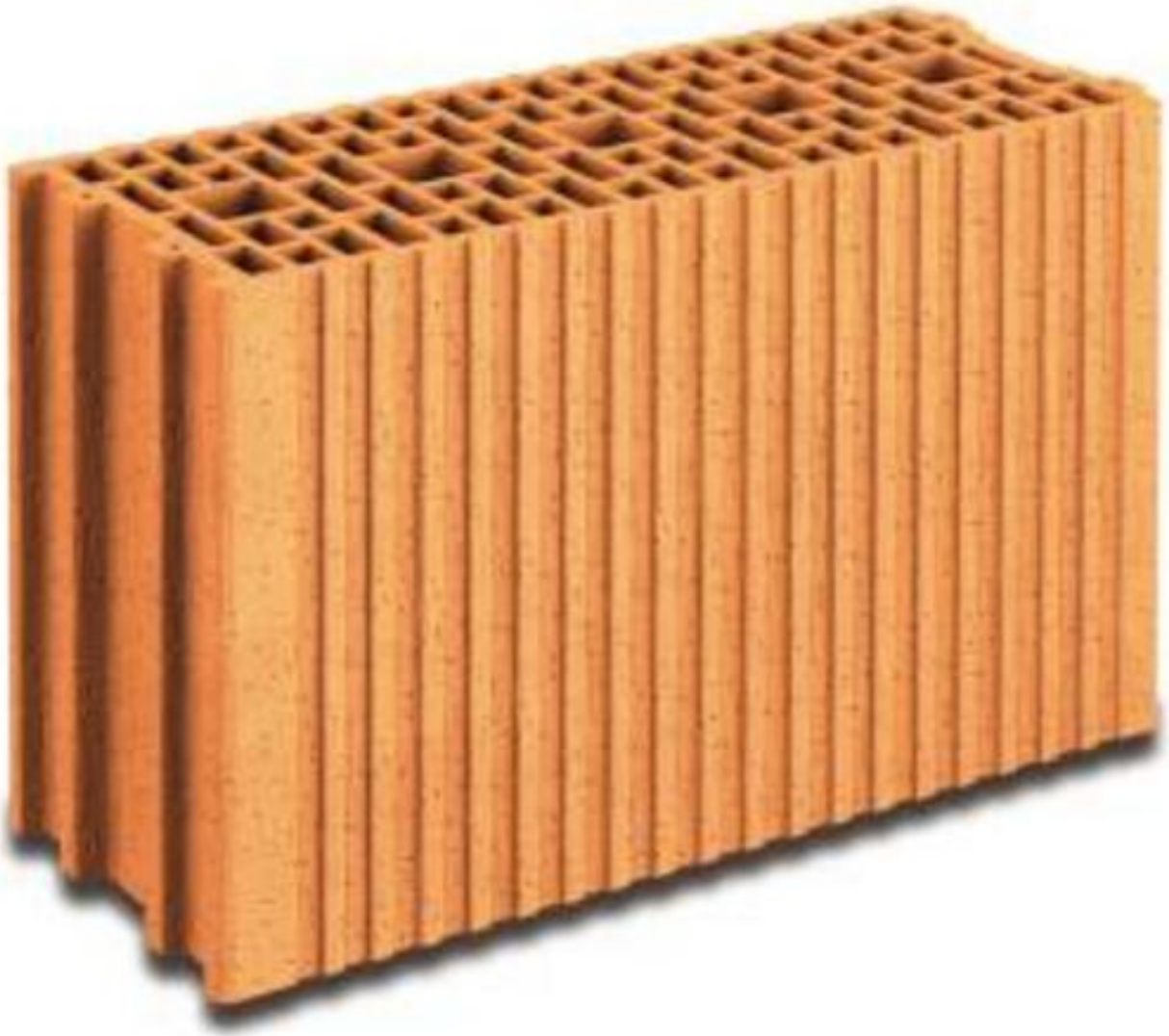
2 mains conditions for memorizing

I learn if

A : I can give meaning to the « stimulation »

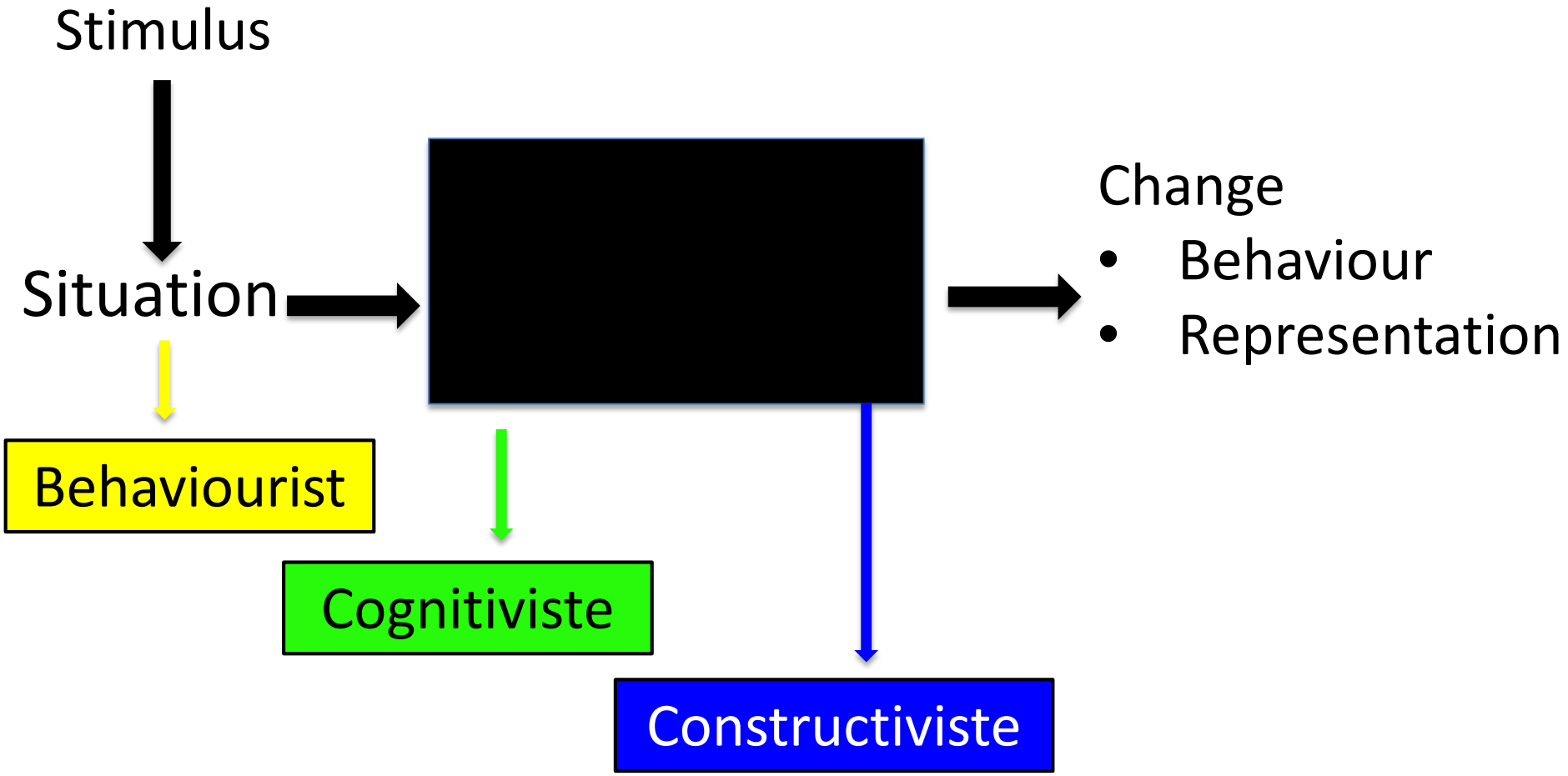
B : I know what to do with this information

B > A



J. Piaget

1896 - 1980

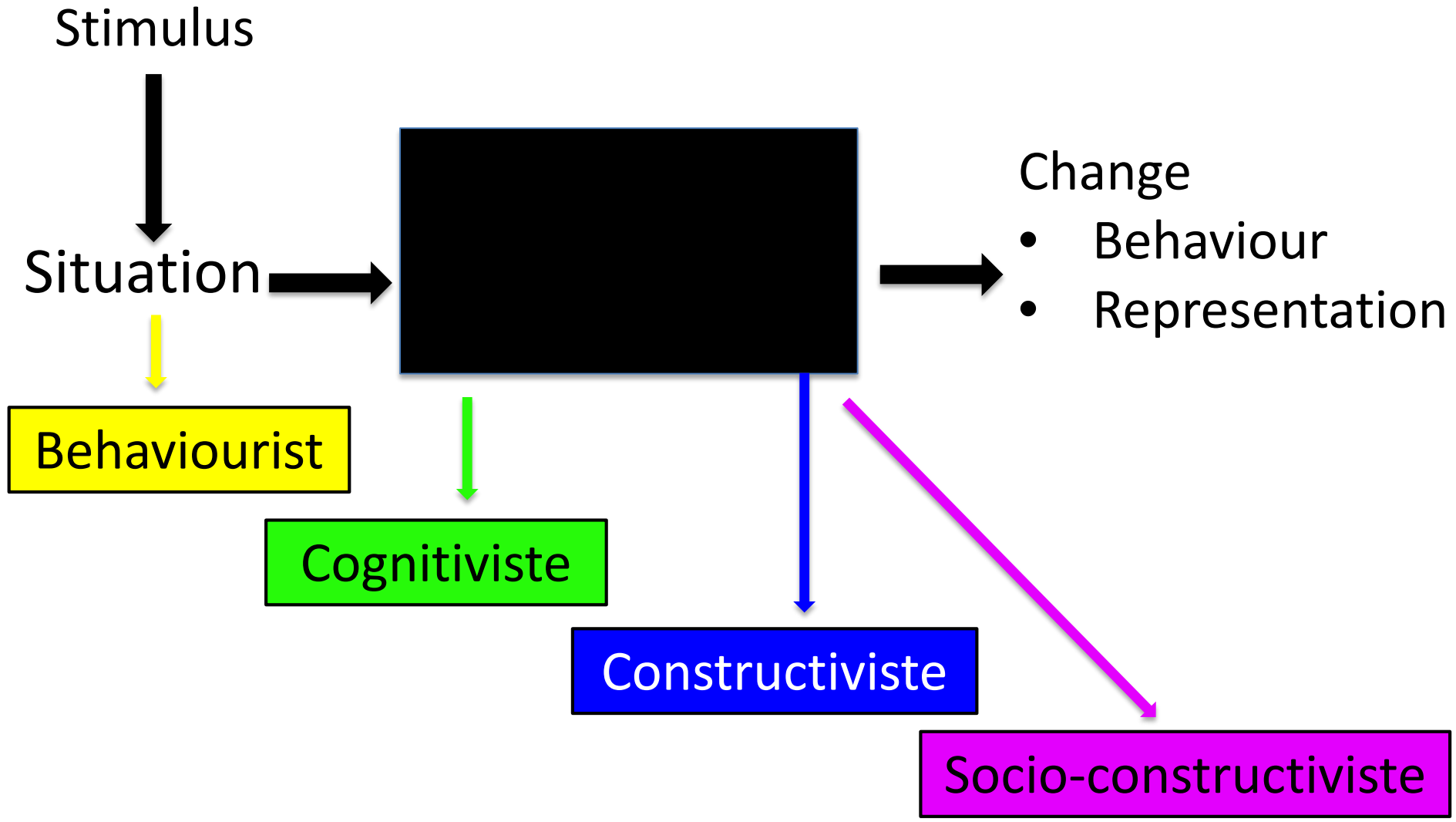

Stimulus
Situation
Change
• Behaviour
• Representation
Behaviourist
Cognitiviste
Constructiviste

Everything you teach them,You prevent them from learning it

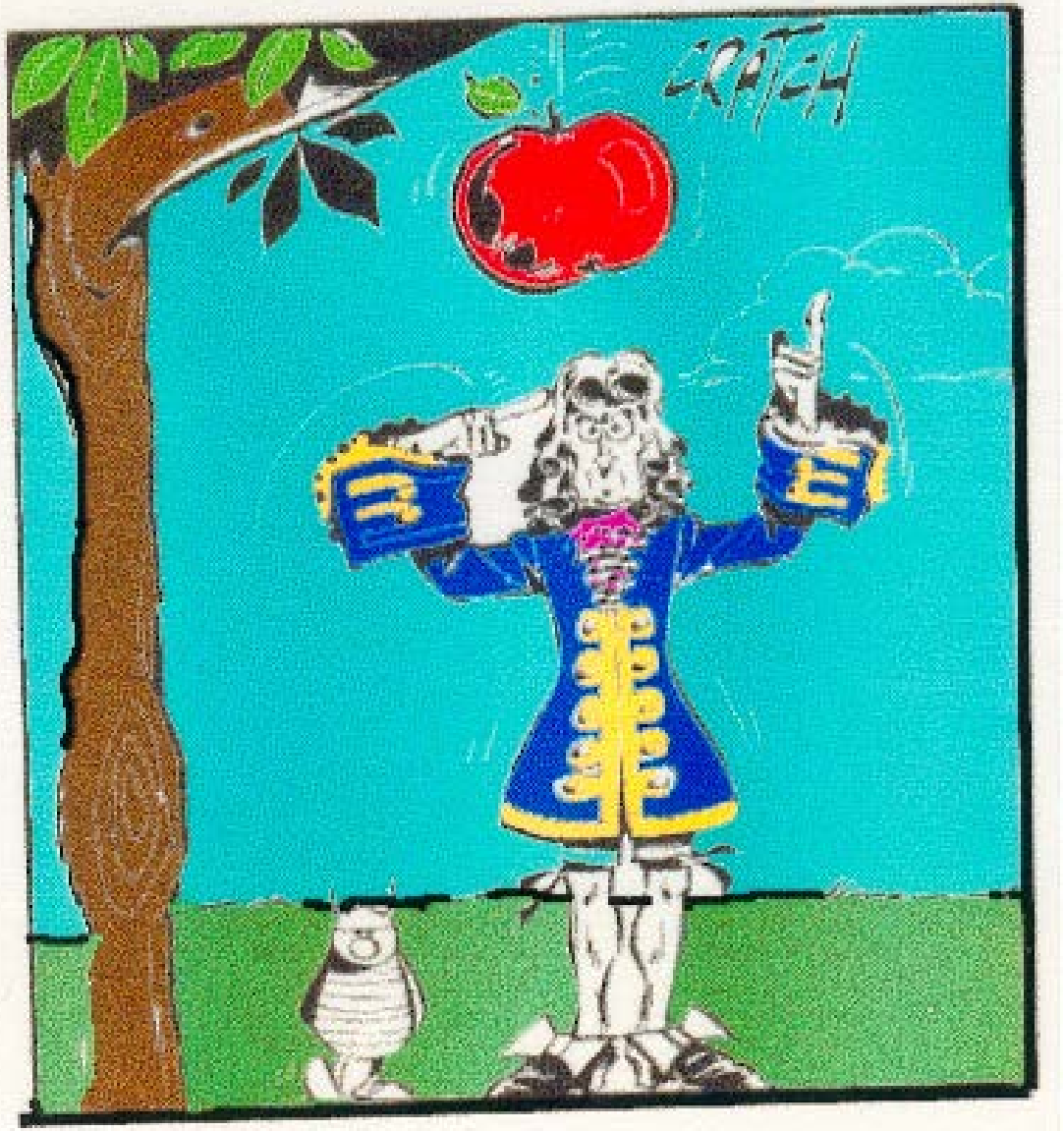

U.N.O
SPORTS
NO 9

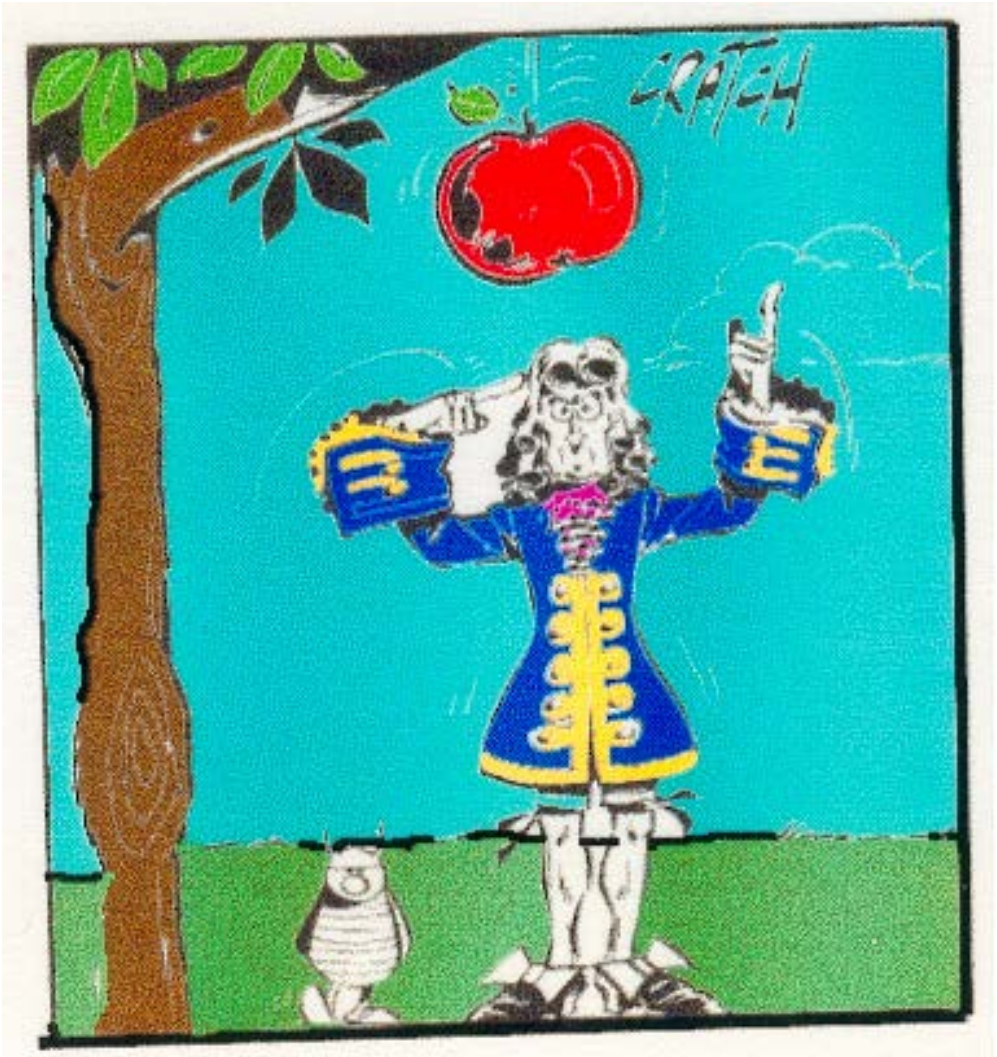
Lev Vygostky

1896 -1934


Stimulus
Situation
Change
• Behaviour
• Representation
Behaviourist
Cognitiviste
Constructiviste
Socio-constructiviste

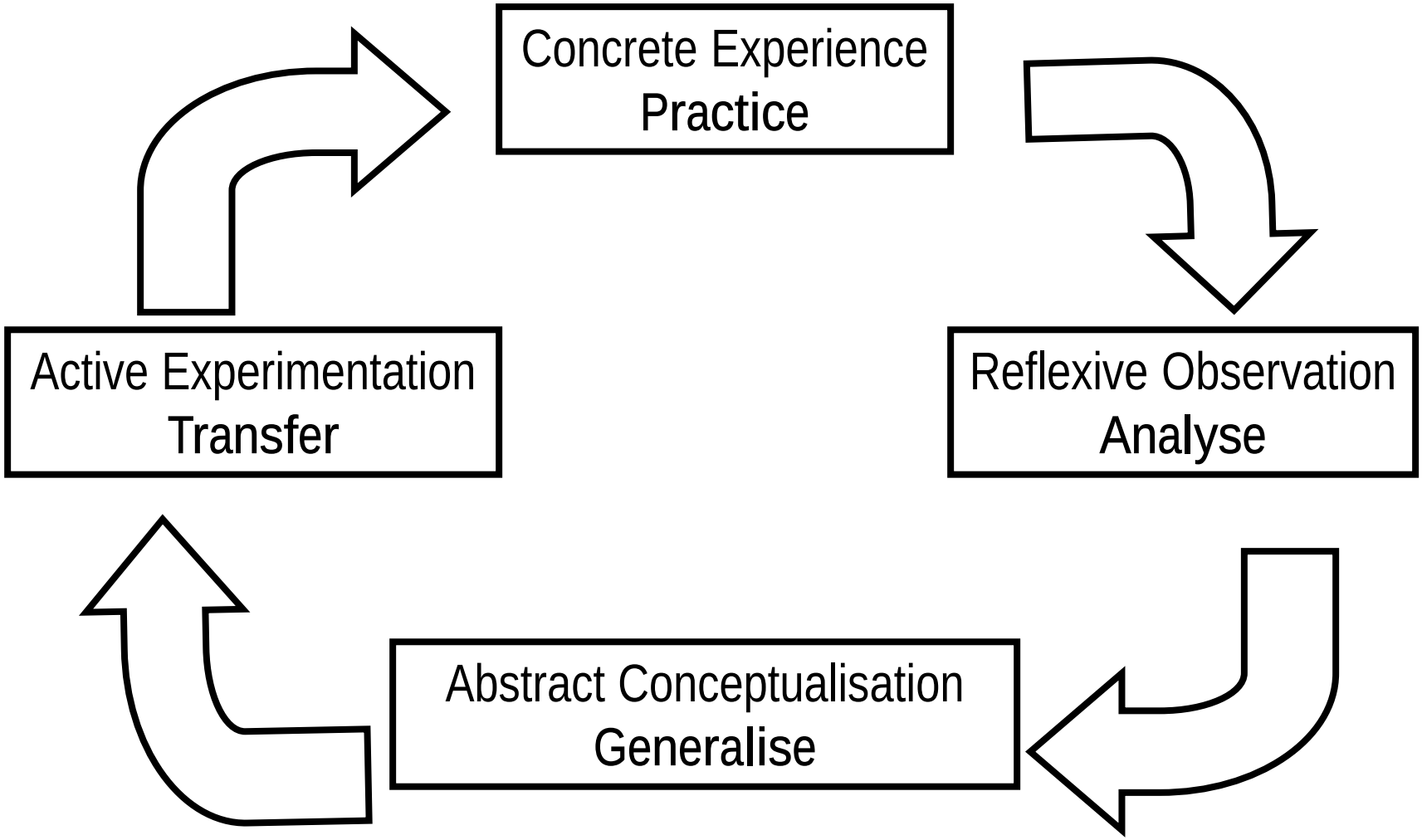
Learning a co-construction


CROTCH

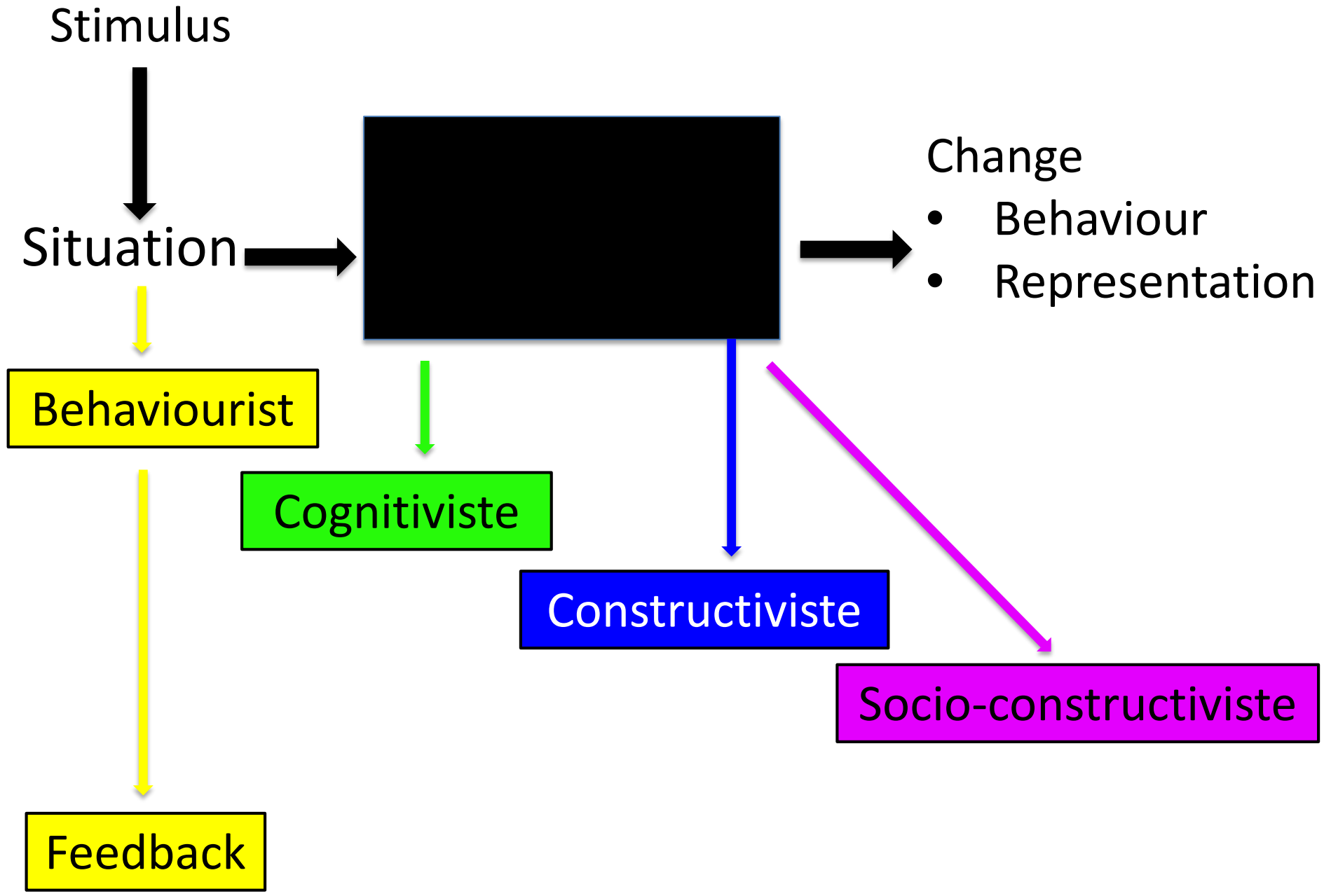


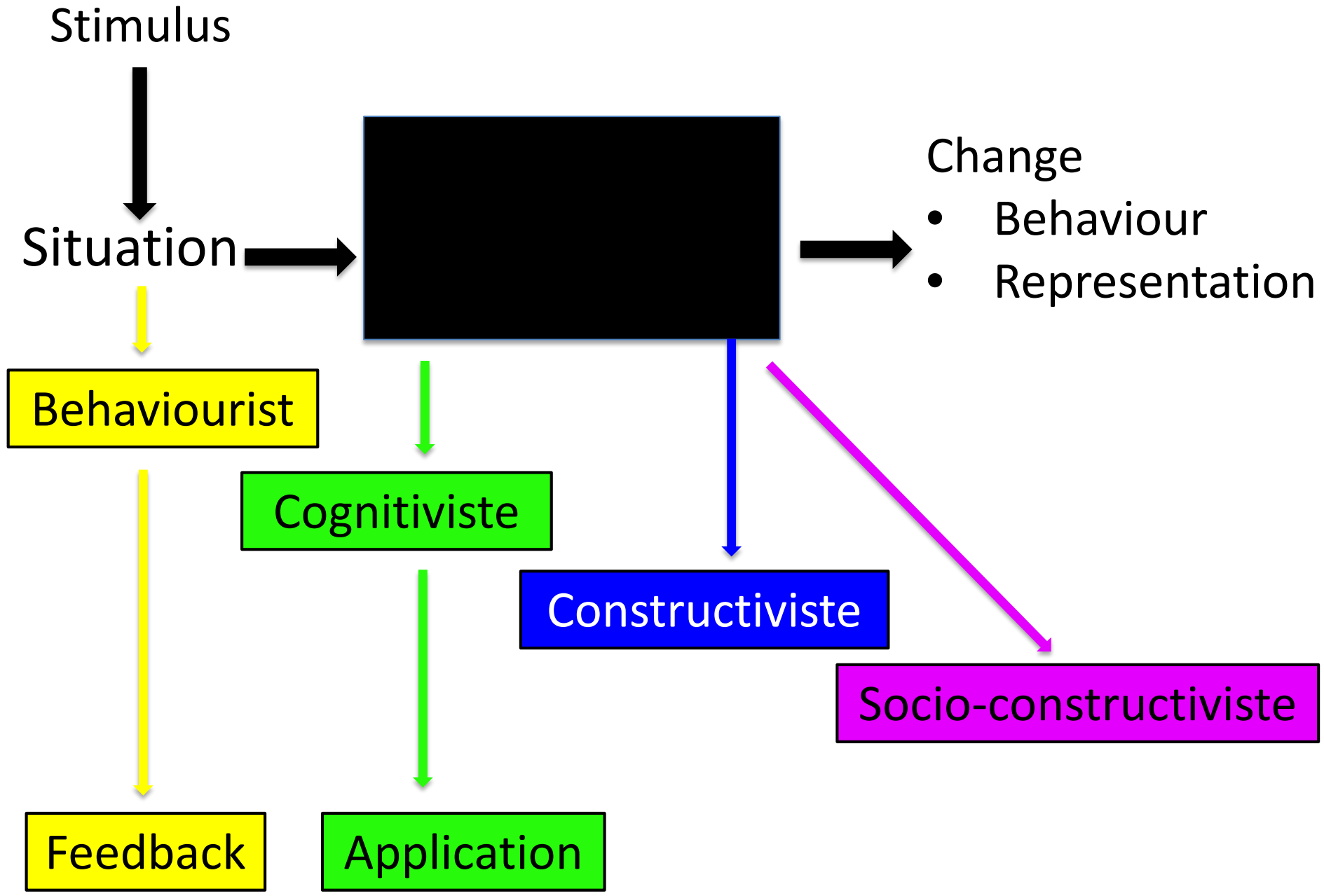
Learning does not come from what you experience but from what you do when you experience it

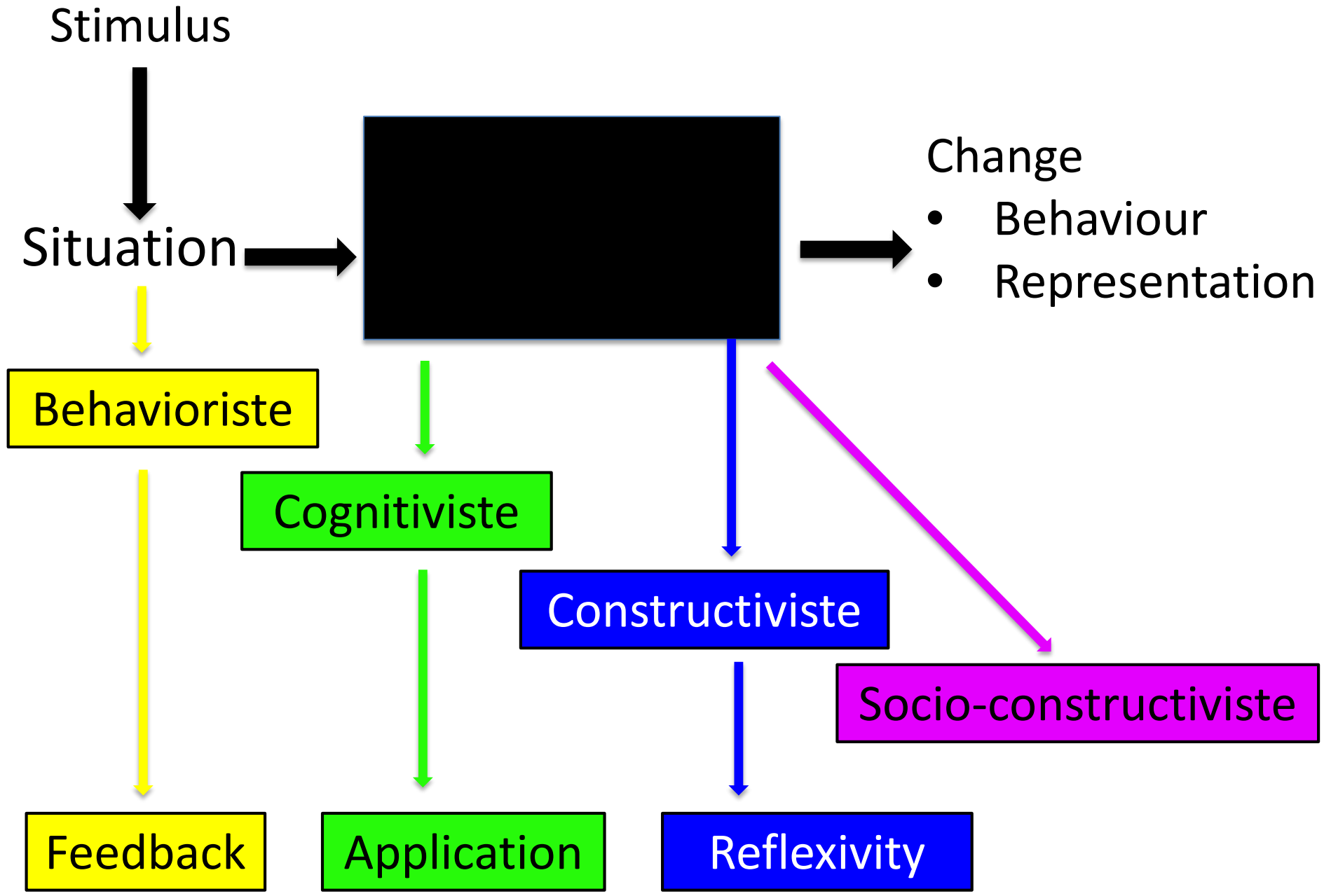
Reflexive Practice

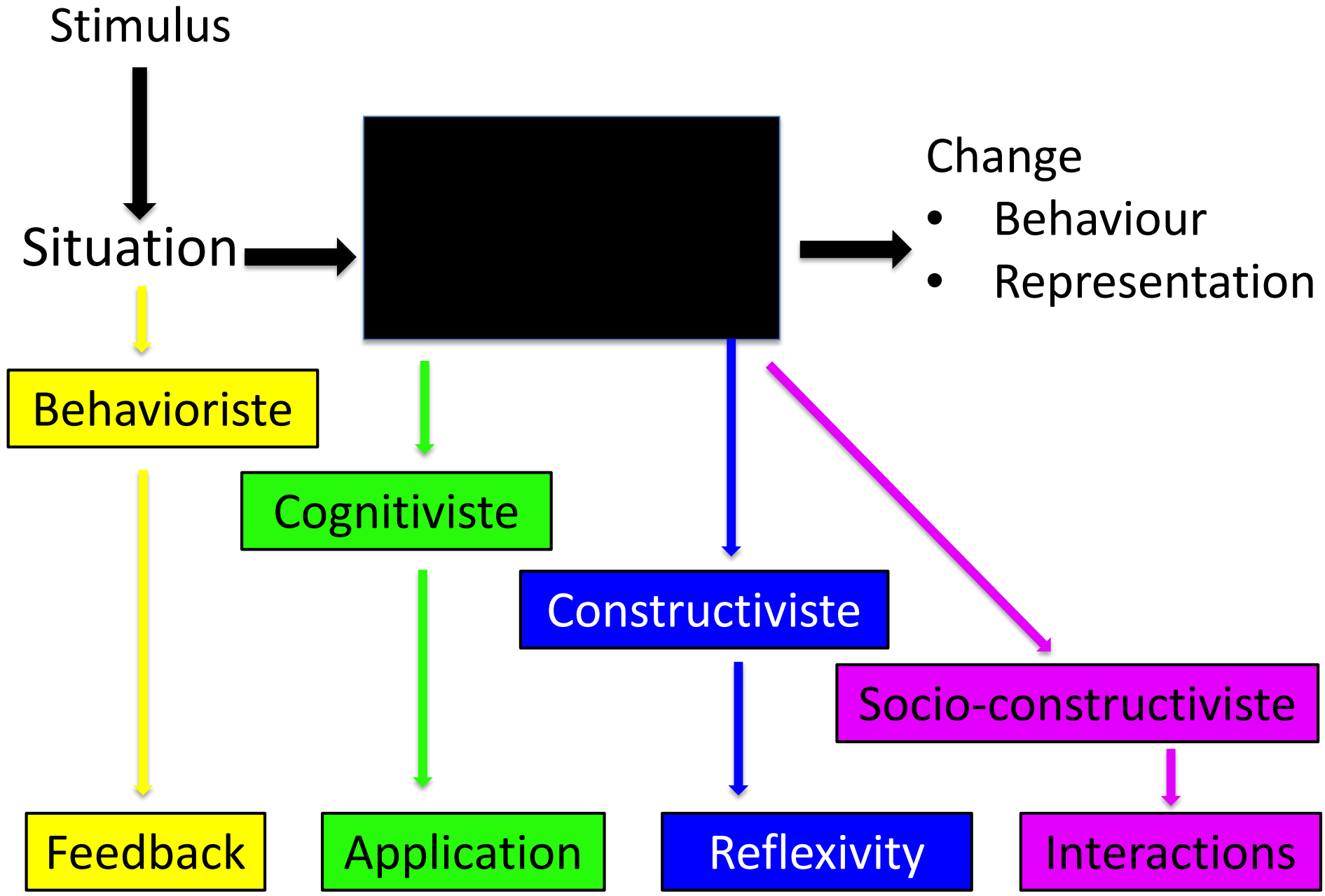


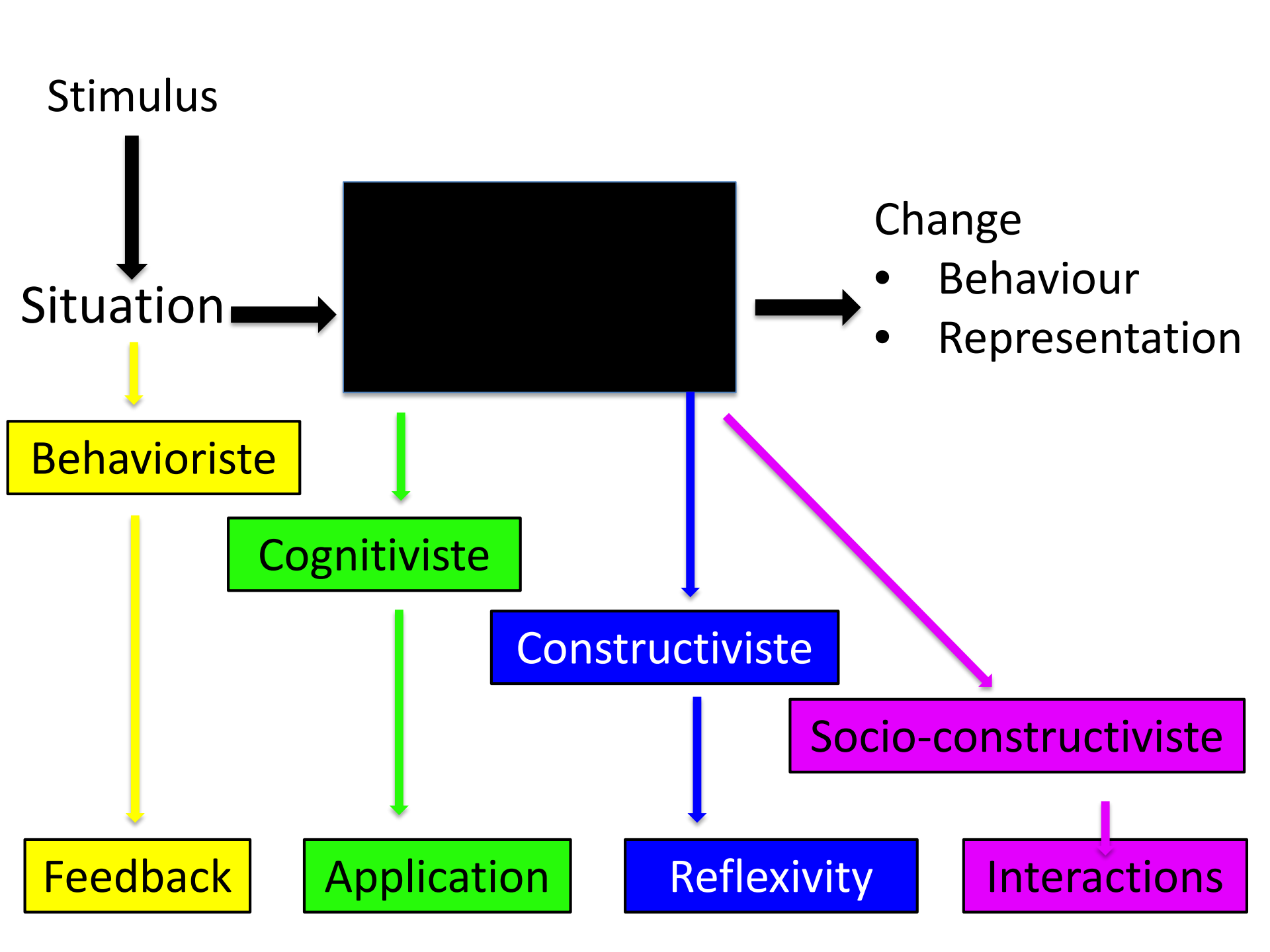
Kolb (1984)


Stimulus
Situation
Change
• Behaviour
• Representation
Behaviourist
Cognitiviste
Constructiviste
Socio-constructiviste
Feedback


Stimulus
Situation
Change
• Behaviour
• Representation
Behaviourist
Cognitiviste
Constructiviste
Socio-constructiviste
Feedback
Application


Stimulus
Situation
Change
• Behaviour
• Representation
Behavioriste
Cognitiviste
Constructiviste
Socio-constructiviste
Feedback
Application
Reflexivity


Stimulus
Situation
Change
• Behaviour
• Representation
Behavioriste
Cognitiviste
Constructiviste
Socio-constructiviste
Feedback
Application
Reflexivity
Interactions


Stimulus
Situation
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• Behaviour
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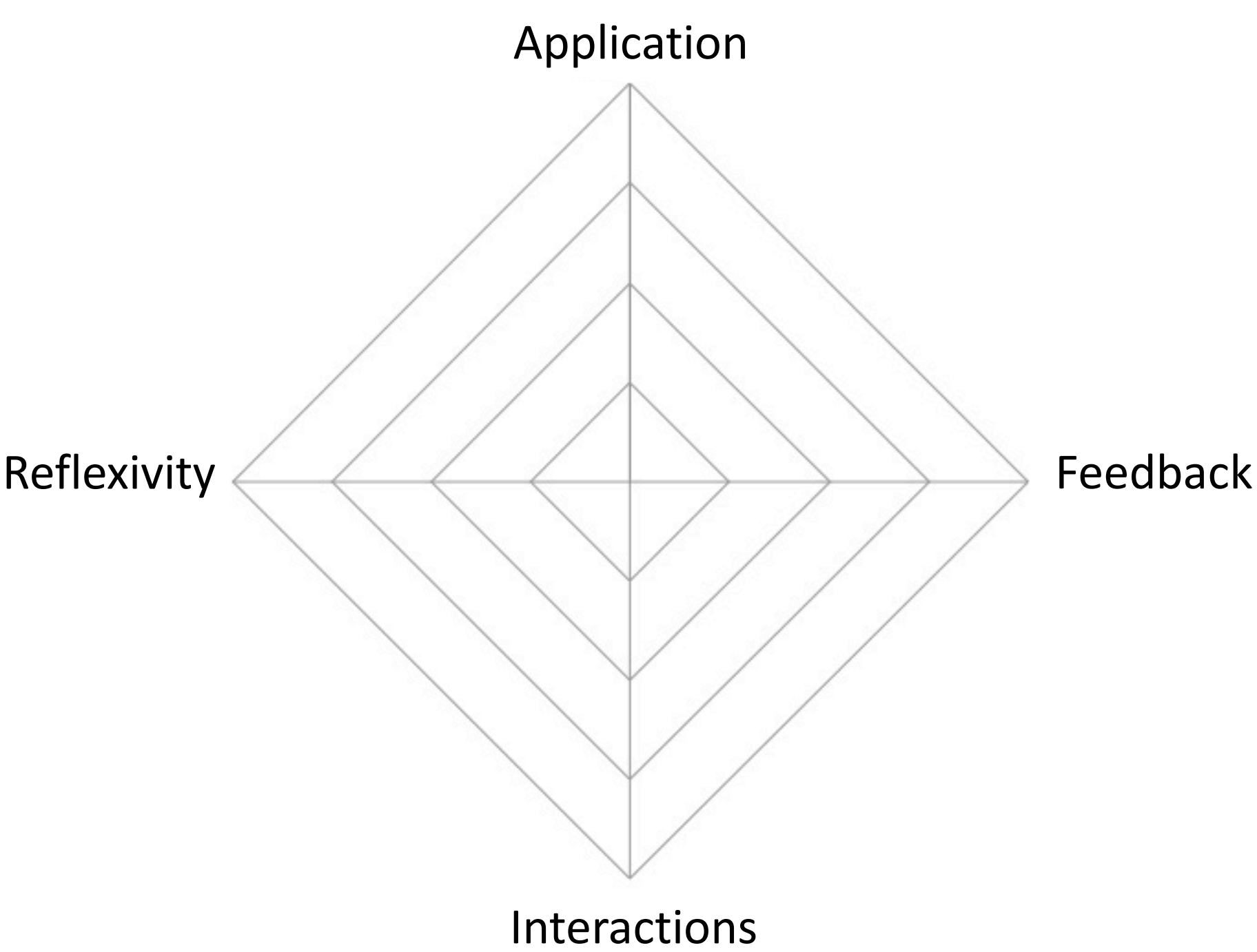
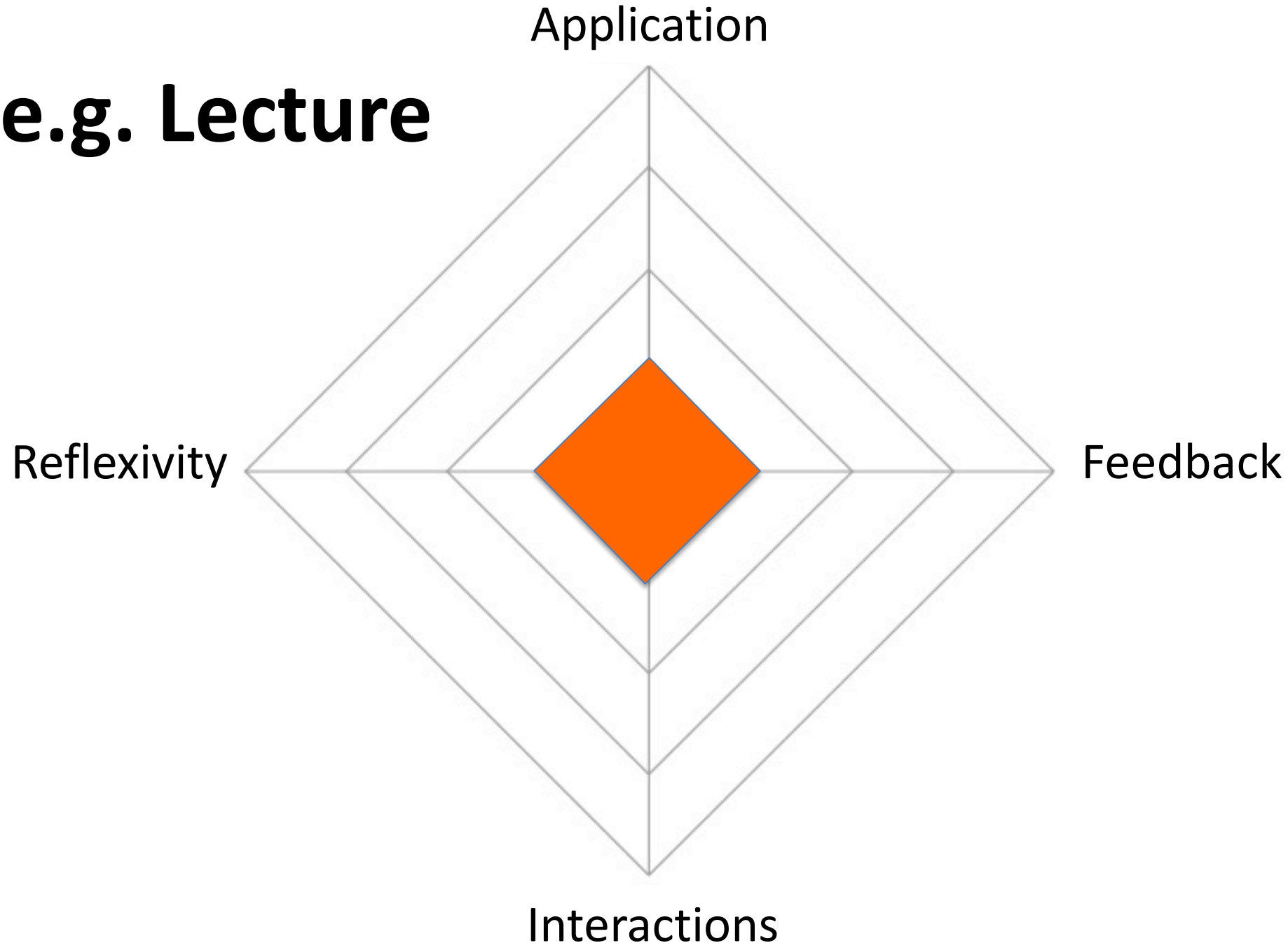
Feedback
Application
Reflexivity
Interactions


Application
Reflexivity
Feedback
Interactions

e.g. Lecture



e.g. Lecture +

Application

Case study in class

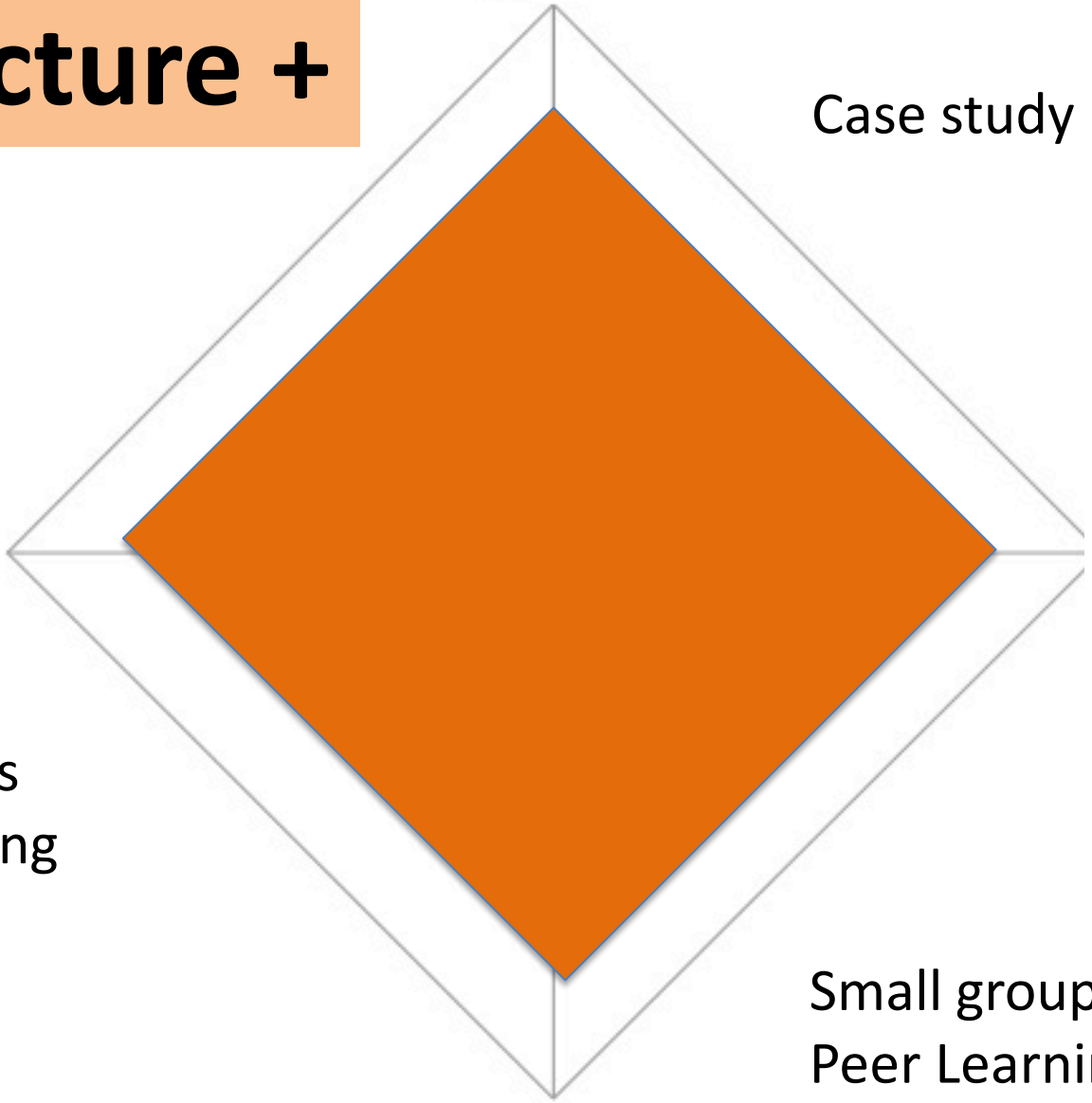
Reflexivity

Synthesis
Comparisons
Mind mapping

Feedback

Small group discussions
Peer Learning

Interactions



2 questions:

What in the pedagogical scenario supports ?

- **Reflexivity**
- **Interactions**
- **Feedback**
- **Application**

What could be done to increase these dimensions ?

Deep Learning

	Gr. A	Gr. B	Gr. C
GOAT House Boat CAR	Upper or Lower?	Rhyme with Coat ?	Which category of object?

	Gr. A	Gr. B	Gr. C
GOAT House Boat CAR	Upper or Lower?	Rhyme with Coat ?	Which catégory ?
	20%	**50%**	**90%**

Deep Learning

- Link ideas between differents topics
- Find the meaning, look for principles
- Link concepts real situations
- Relate to what is already known

Learning approaches Continuum

Surface Learning

Deep Learning

Focused on reproducing content

Focused on integration / ownership of knowledge

From Prosser et Trigwell

What promotes Deep Learning

- Teaching by questions or problems **A**
- Feedback on progression **FB**
- Opportunities to make links **R**
- Use knowledge in different contexts **A**
- Put in doubt representations **R**
- High involvement of students, interactions **I**

What students see as a good teaching

- Involve students in fruitful discussions (4.62)
- Give a useful feedback to students on results and projects (4.52)
- Bring knowledge useful in a professional context (4.45)
- Stimulate creative reflexion (4.43)

2475 students – 59 Hei's

Nasser-Abu Alhigi 2017

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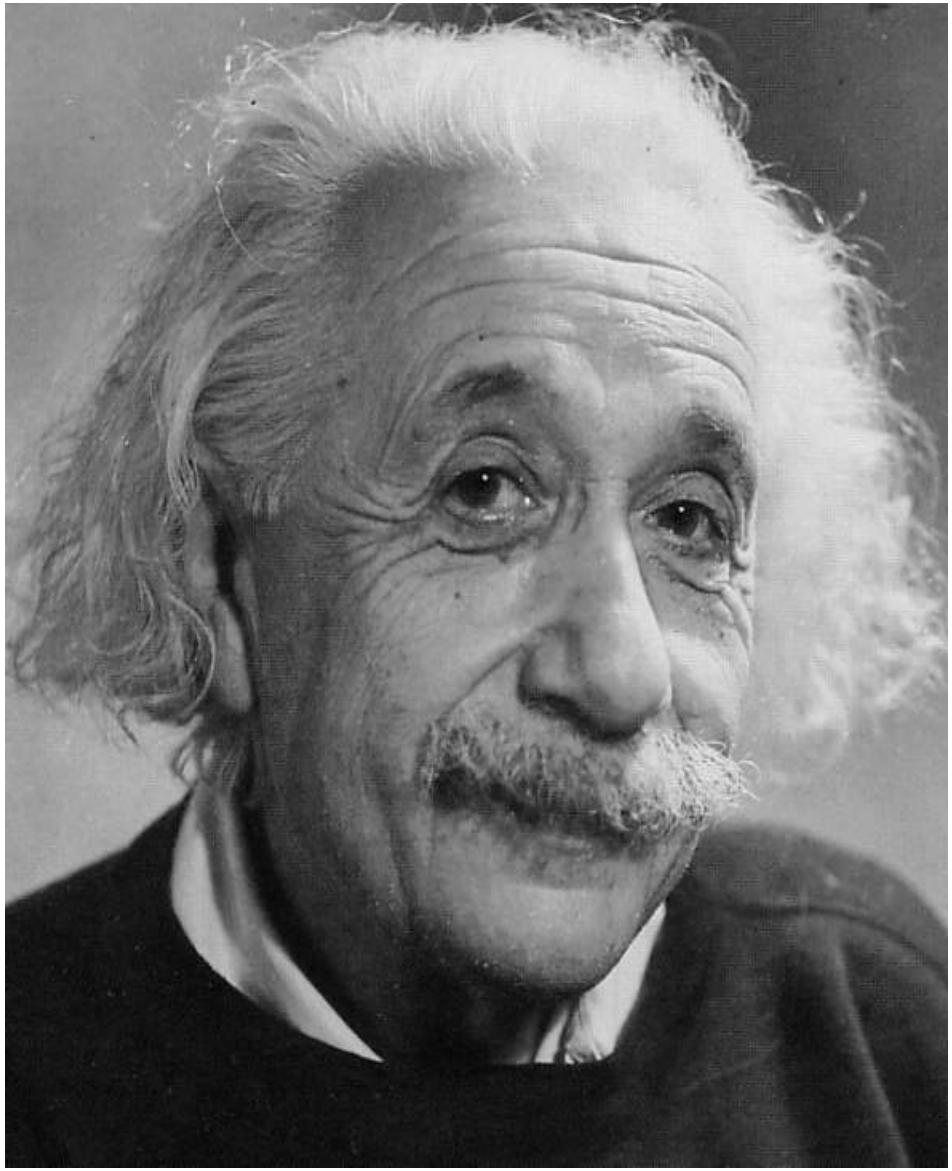
- Give a useful feedback to students on results and projects (4.52) **FB**
- Bring knowledge useful in a professional context (4.45) **A**
- Stimulate creative reflexion (4.43) **R**

2475 students – 59 Hei's

Nasser-Abu Alhigi 2017

In short…

- The context of HE is significantly changing at different levels
- These changes generate real challenges for teaching and change the role of teachers calling for new competencies
- A useful way to address these challenges is to refer to basic principles of learning: Increase Reflexivity, Interactions, Application & Feedback



« It is the supreme art of the teacher to awaken joy in creative expression and knowledge»

Einstein


Thanks for your attention
Jacques.lanares@unil.ch