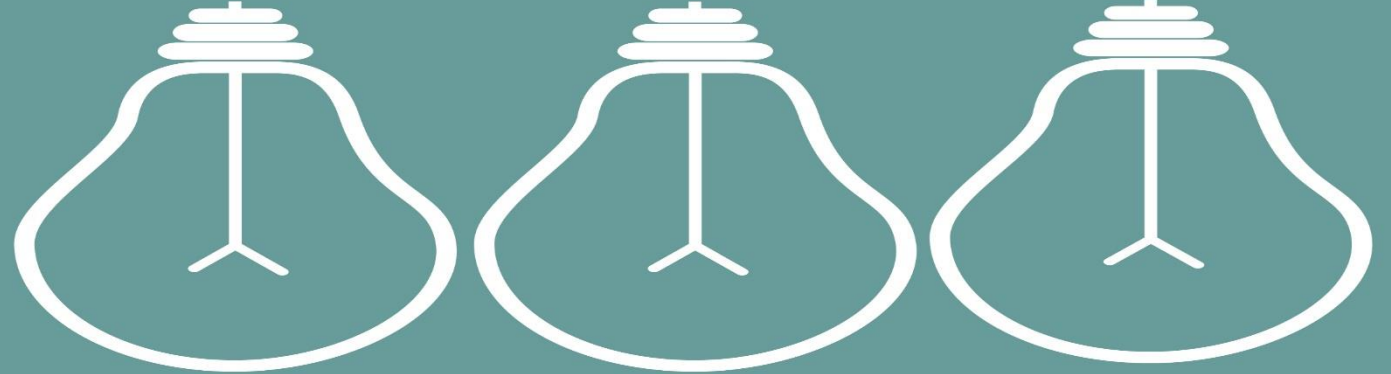


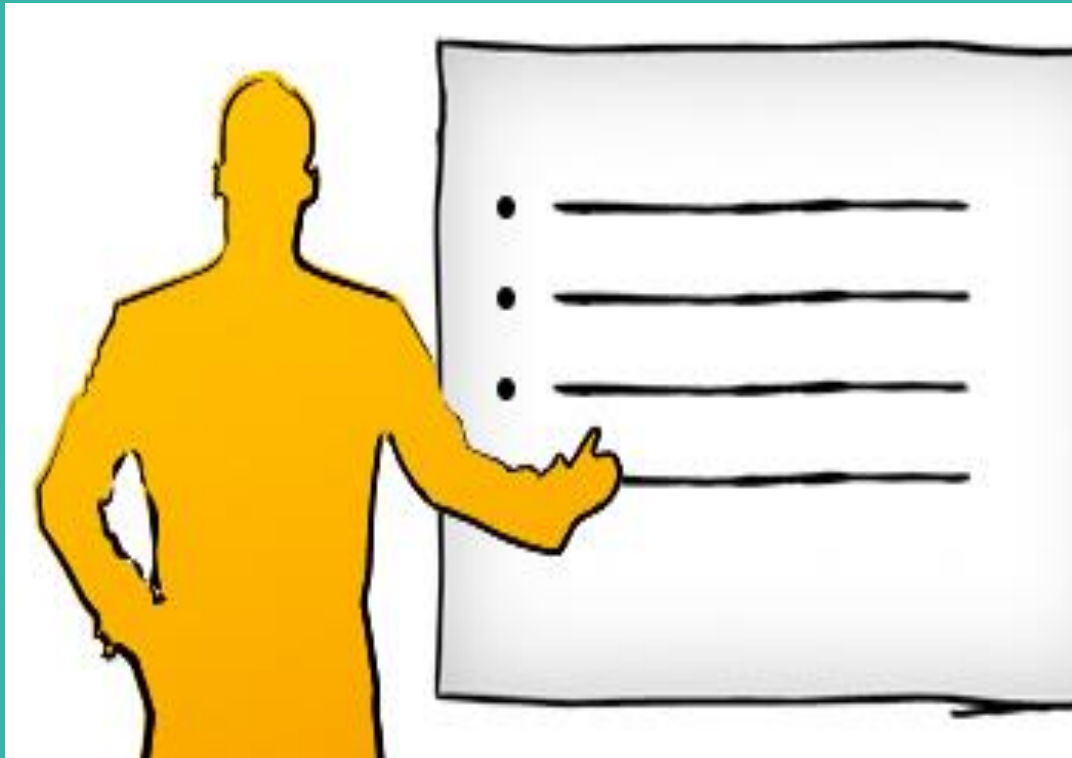
Innopedia® introduction



Liisa Kairisto-Mertanen

Dean, Turku University of Applied Sciences, Technology, environment and business

Outline of the presentation



- *Background*
- *Innovation pedagogy*
- *Innovation competencies*
- *Cornerstones*
- *The process of implementation*
- *Discussion*

Suomi on maailman vakain valtio.

The Fund for Peace, [Fragile States Index 2016](#)

Suomi on maailman turvallisim maa.

World Economic Forum, [Travel and Tourism Competitiveness Report 2015: Finland](#)

Suomessa on maailman paras hallinto.

Legatum Institute, [The Legatum Prosperity Index 2016: Finland](#)

Suomessa on maailman vähiten järjestäytyntä rikollisuutta.

World Economic Forum, [The Global Competitiveness Report 2016–2017: Organized crime](#)

Suomessa on maailman riippumattomin oikeuslaitos.

World Economic Forum, [The Global Competitiveness Report 2016–2017: Judicial independence](#)

Suomessa on maailman paras lehdistönvapaus.

Reporters Without Borders, [2016 World Press Freedom Index](#)

- Suomessa on eniten maailmassa inhimillistä pääomaa.
- *World Economic Forum, [The Human Capital Report: Human Capital Index 2016](#)*
- Suomen peruskoulutus on maailman parasta.
- *World Economic Forum, [The Global Competitiveness Report 2016-2017: Primary Education](#)*
- Suomi on OECD-maiden kärkimaa koulutuksessa.
- *OECD, [Better Life Index: Education](#)*
- Suomi on maailman lukutaitoisin maa.
- *J. W. Miller ja M. C. McKenna, [World Literacy: How Countries Rank and Why It Matters](#) (Routledge 2016)*
- Suomi on innovaatiovertailussa maailman kolmas.
- *World Economic Forum, [The Global Competitiveness Report 2016-2017: Innovation](#)*
- Suomessa on maailman toiseksi parhain korkeakouluista valmistuneiden luku- ja kirjoitustaito
- *Education at a Glance 2016*
- Suomessa juodaan eniten kahvia, *International Coffee Organization, [Coffee Trade Statistics](#)*

Finland is number 1

The best country for mothers

Save the Children

The world's strongest state

Fund for Peace

**The country with most rally
championships**

World Rally Championship

Helsinki –

The most honest city in the world

Reader's Digest

**The world's best junior ice
hockey team 2014**

International ice hockey federation

**Europe's most forested country –
about 70% of Finland is
covered with trees**

Food and Agriculture Organization

World's least failed state 2013

The Fund for Peace

**There are going to be
big changes in the way
we work.**

**Are the universities
prepared?**

**Is higher education
producing
Competences
that really matter?**

Future work skills 2020

By Institute for the Future for
the University of Phoenix Research Institute

The report presents:

- 6 drivers of change, disruptive forces that change how work is done in the future
- Based on there 10 skills which are believed to be cricial for success in workplace



10 skills critical for success in the workforce by year 2020

1 SENSE-MAKING

DEFINITION: *ability to determine the deeper meaning or significance of what is being expressed*

3 NOVEL & ADAPTIVE THINKING

DEFINITION: *proficiency at thinking and coming up with solutions and responses beyond that which is rote or rule-based*

5 COMPUTATIONAL THINKING

DEFINITION: *ability to translate vast amounts of data into abstract concepts and to understand data-based reasoning*

7 TRANSDISCIPLINARITY

DEFINITION: *literacy in and ability to understand concepts across multiple disciplines*

9 COGNITIVE LOAD MANAGEMENT

2 SOCIAL INTELLIGENCE

DEFINITION: *ability to connect to others in a deep and direct way, to sense and stimulate reactions and desired interactions*

4 CROSS-CULTURAL COMPETENCY

DEFINITION: *ability to operate in different cultural settings*

6 NEW-MEDIA LITERACY

DEFINITION: *ability to critically assess and develop content that uses new media forms, and to leverage these media for persuasive communication*

8 DESIGN MINDSET

DEFINITION: *ability to represent and develop tasks and work processes for desired outcomes*

10 VIRTUAL COLLABORATION

Source: <http://www.iftf.org/futureworkskills/>



Future of jobs

Top 10 skills at 2020

Innovations wanted!

A satellite view of Earth from space, showing the planet's curvature and some cloud patterns. A central satellite is visible, with five callout bubbles arranged around it. The bubbles contain text related to innovation and policy.

For
national
success

To save
the planet

Mission all
around the
world

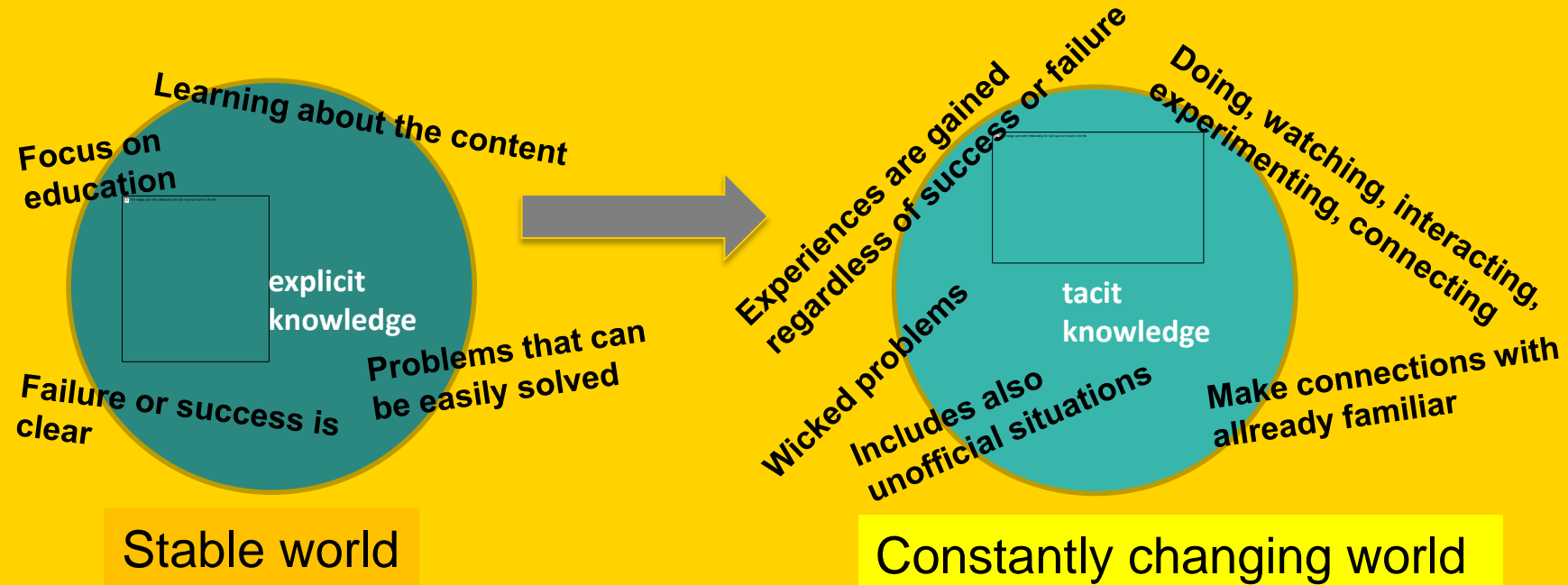
Central
element in
policy
agendas

Earnings logic
in companies is
based on
innovations

Change in education is a must

Traditional university pedagogy

Innovation pedagogy



www.turkuamk.fi

Innovation?

Utilized Competence-
based
Competitive Advantage
(Finnish Innovation Strategy 2008)

Innovation?

Utilized competence based competitive advantage

(Fi Innovation strategy 2008)

The process of constantly improving knowledge, which leads to new sustainable, ideas, products, further knowledge or other practices applicable in working life

Radical innovations create major disruptive changes whereas incremental innovation continuously advance the process of change

(Schumpeter 1942)



At Turku University of Applied Sciences, we...



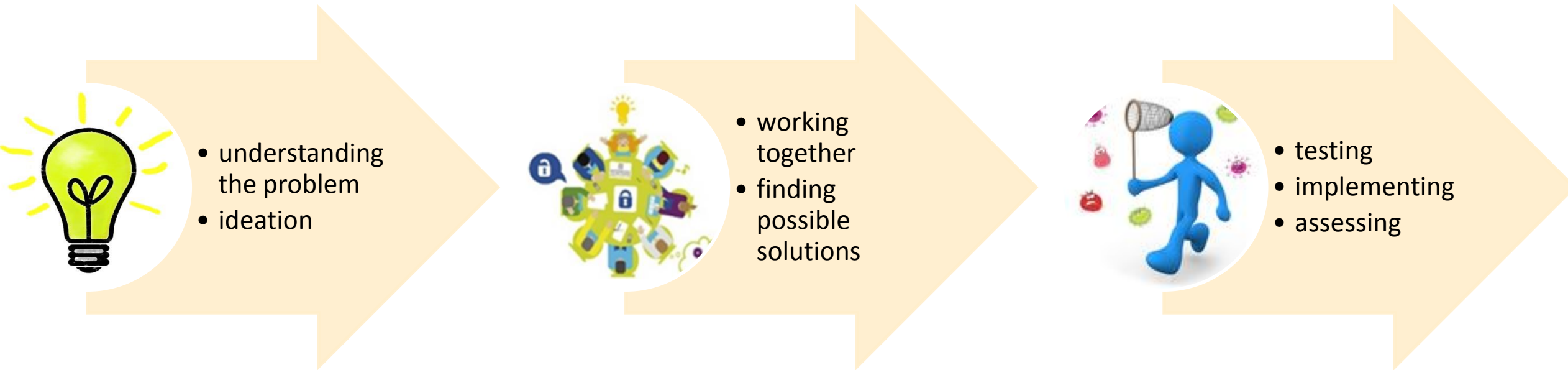
**Aim at
educating
innovative
graduates**

**Emphasize
innovation**

**Try to
understand
what it
requires to
achieve our
aim**

**Apply
innovation
pedagogy**

The innovation process



What are the antecedents of innovations:
the innovation competencies ?



Brussels, 30.5.2017
COM(2017) 247 final

**COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL
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on a renewed EU agenda for higher education

{SWD(2017) 164 final}

PRIORITIES FOR ACTION

- 1** Tackling future skills mismatches and promoting excellence in skills development
- 2** Building inclusive and connected higher education systems
- 3** Ensuring higher education institutions contribute to innovation
- 4** Supporting effective and efficient higher education systems

PRIORITIES FOR ACTION

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5.2 Promising approaches

5.2.1 Promoting entrepreneurship, creativity and innovation skills

76. Higher education institutions increasingly recognise that they must afford young minds the opportunity to develop skills that inspire, encourage and enable innovation. Although it is difficult to make explicit links between specific skills and innovation, there is a move towards rethinking education and training programmes to promote the combined skills of creative and critical thinking, entrepreneurship, problem-solving, risk-taking and resilience, management, communication, exploiting the results of research and independent analysis. Promoting, assessing and rewarding these skills sets in higher education, alongside acquisition of detailed subject knowledge, is one of the challenges faced by teaching staff across Europe.

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FINCODA

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Source: FINCODA

Innovation pedagogy in a nutshell

Cornerstones
needed

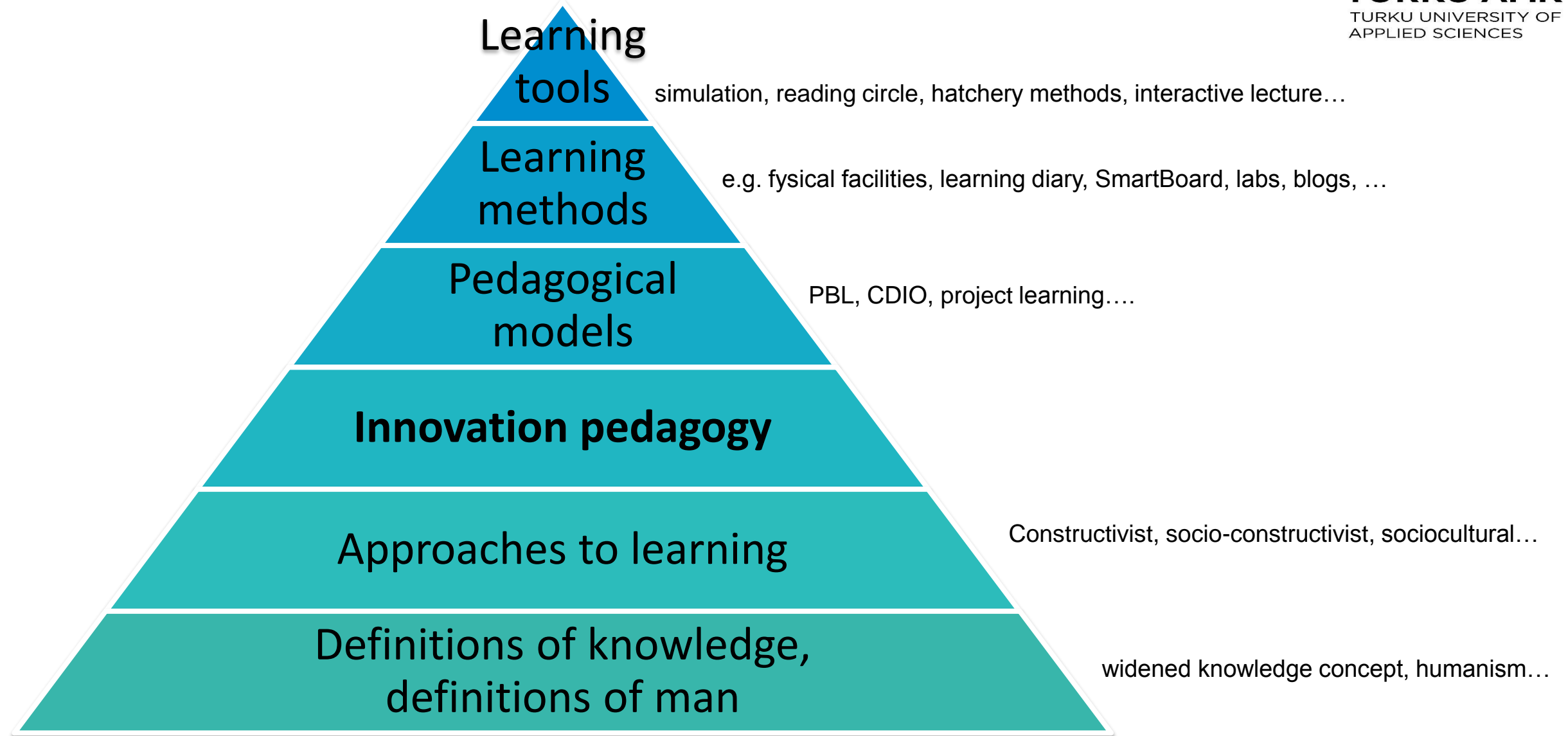
Innovation
competency

Future
substance
based
competency

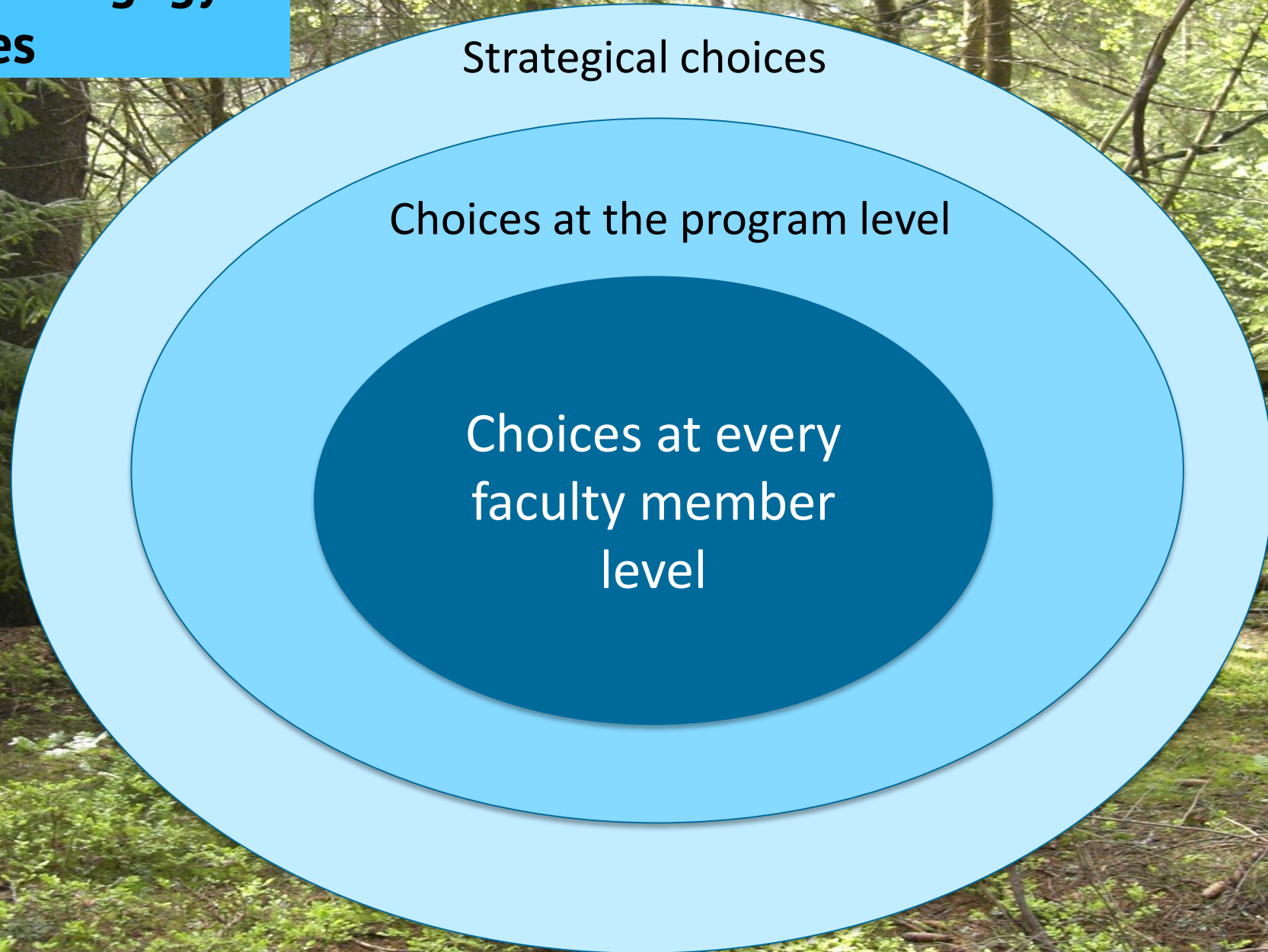
Success
Better life



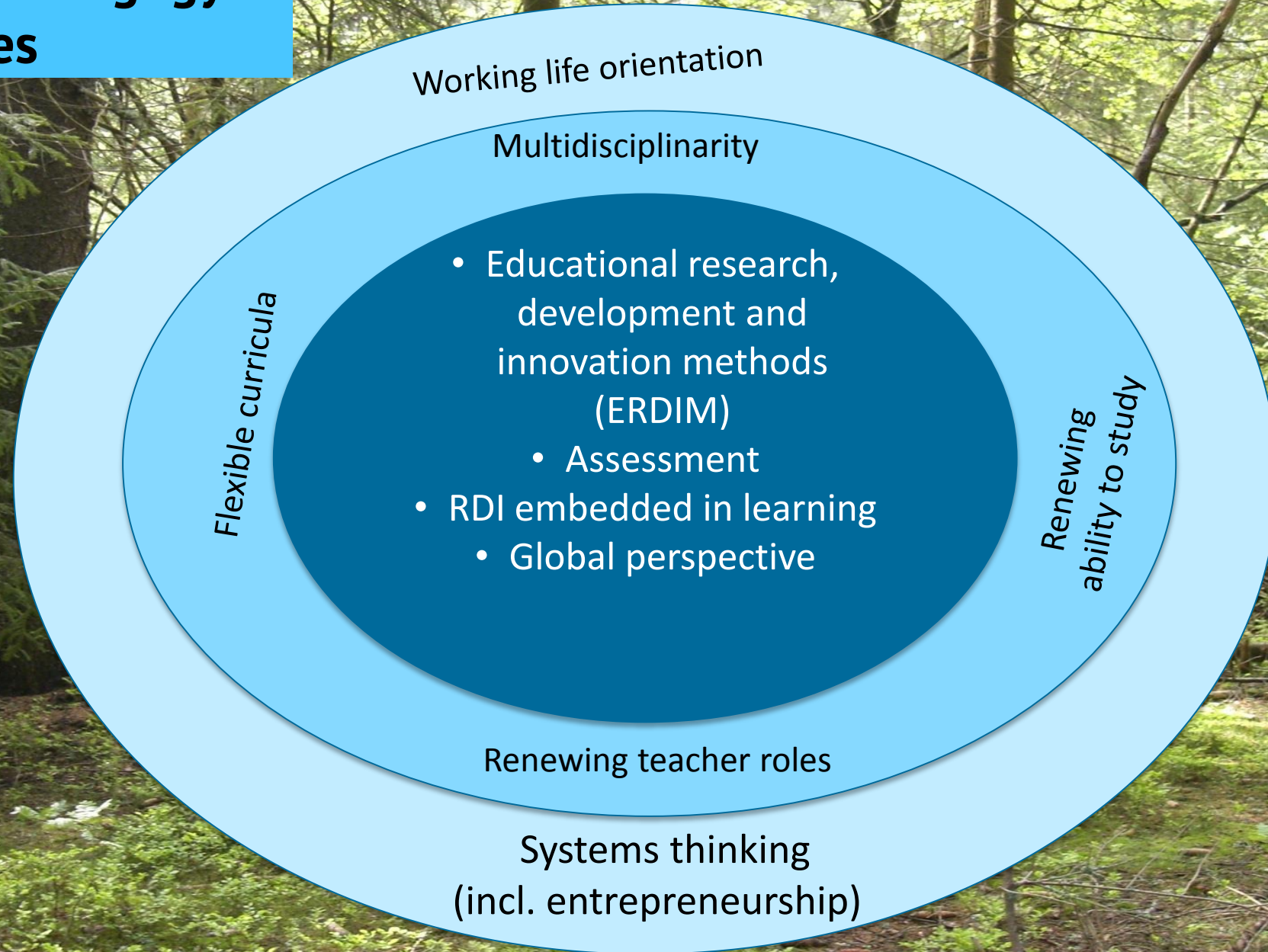
Hierarchy of pedagogical choices



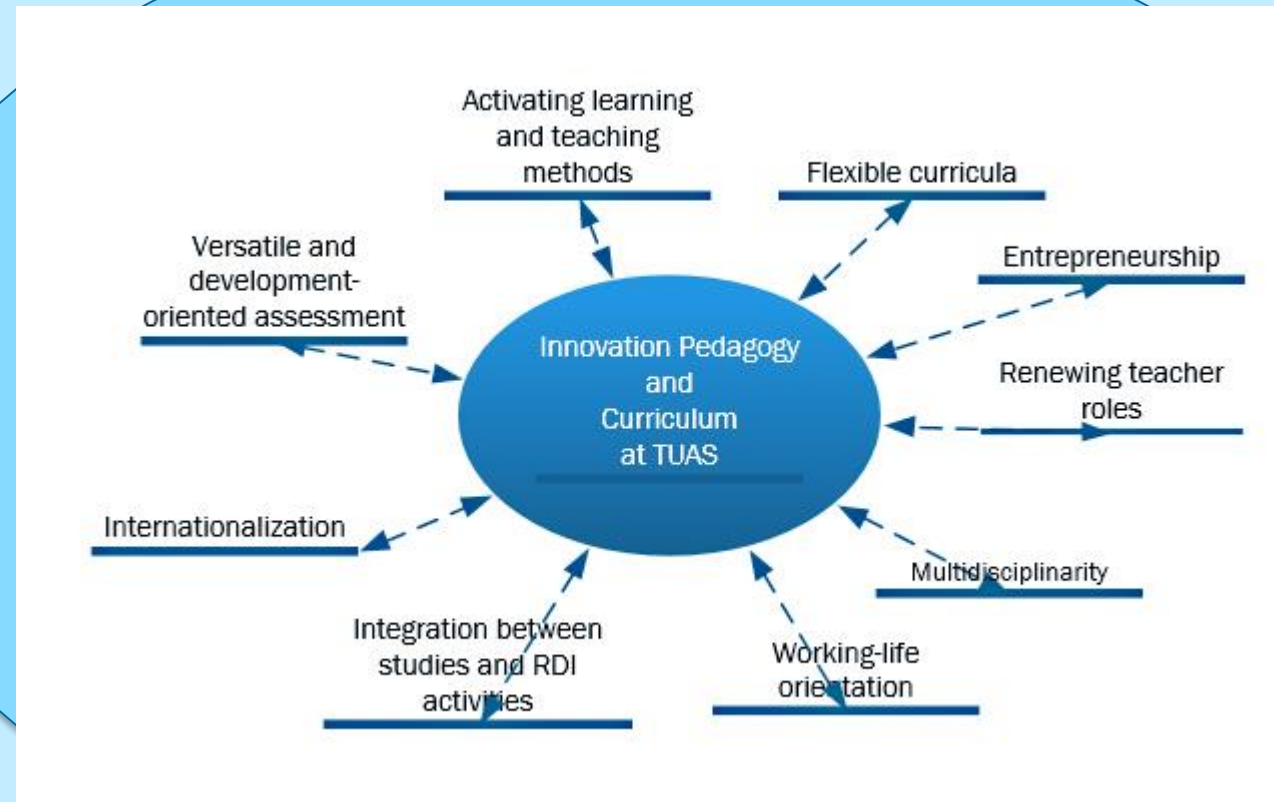
Innovation Pedagogy Cornerstones



Innovation Pedagogy Cornerstones



Cornerstones used at TUAS

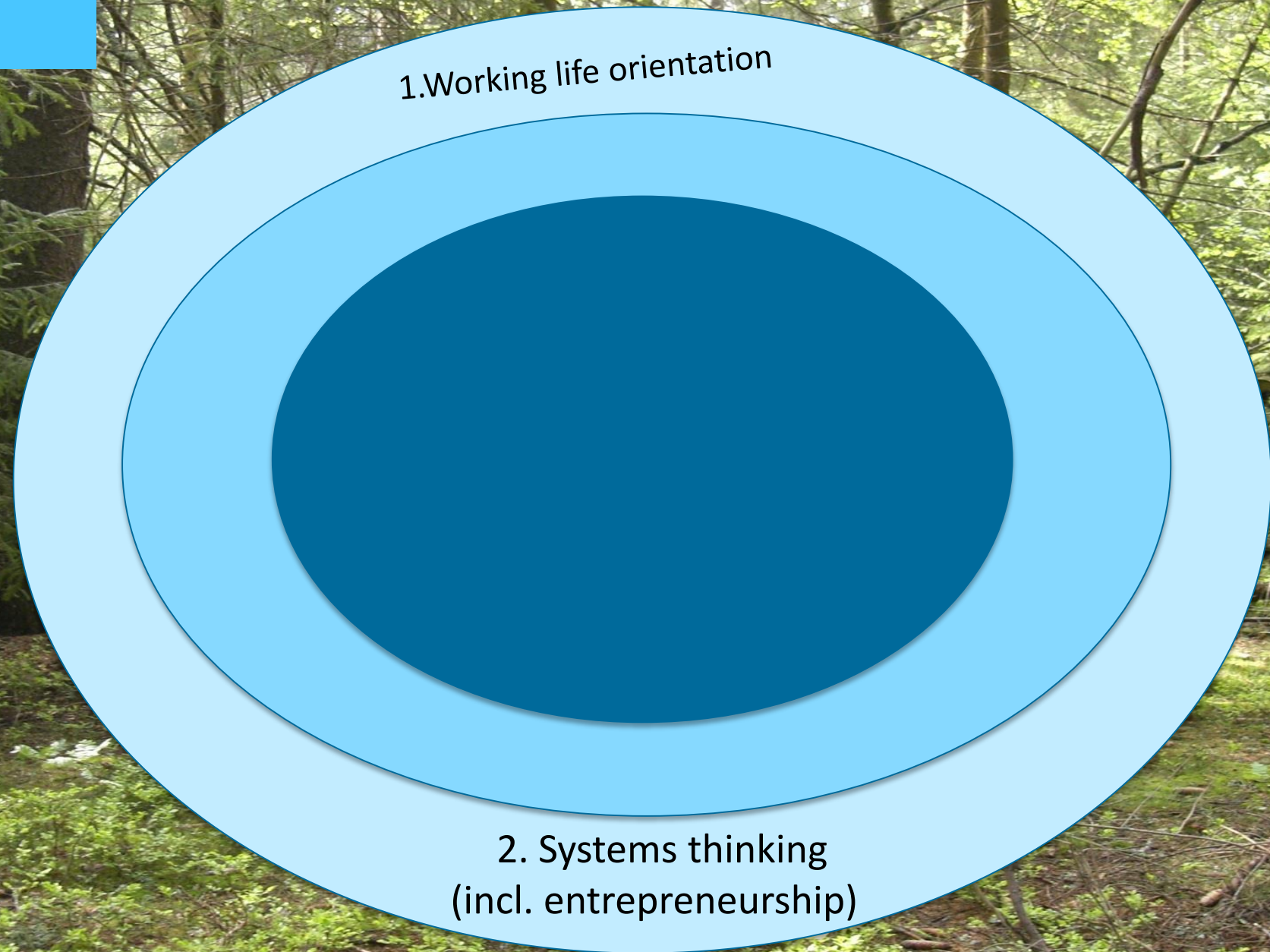


Implementing necessary requirements




The whole education must be planned so that both innovation competencies and subject based competencies are reached

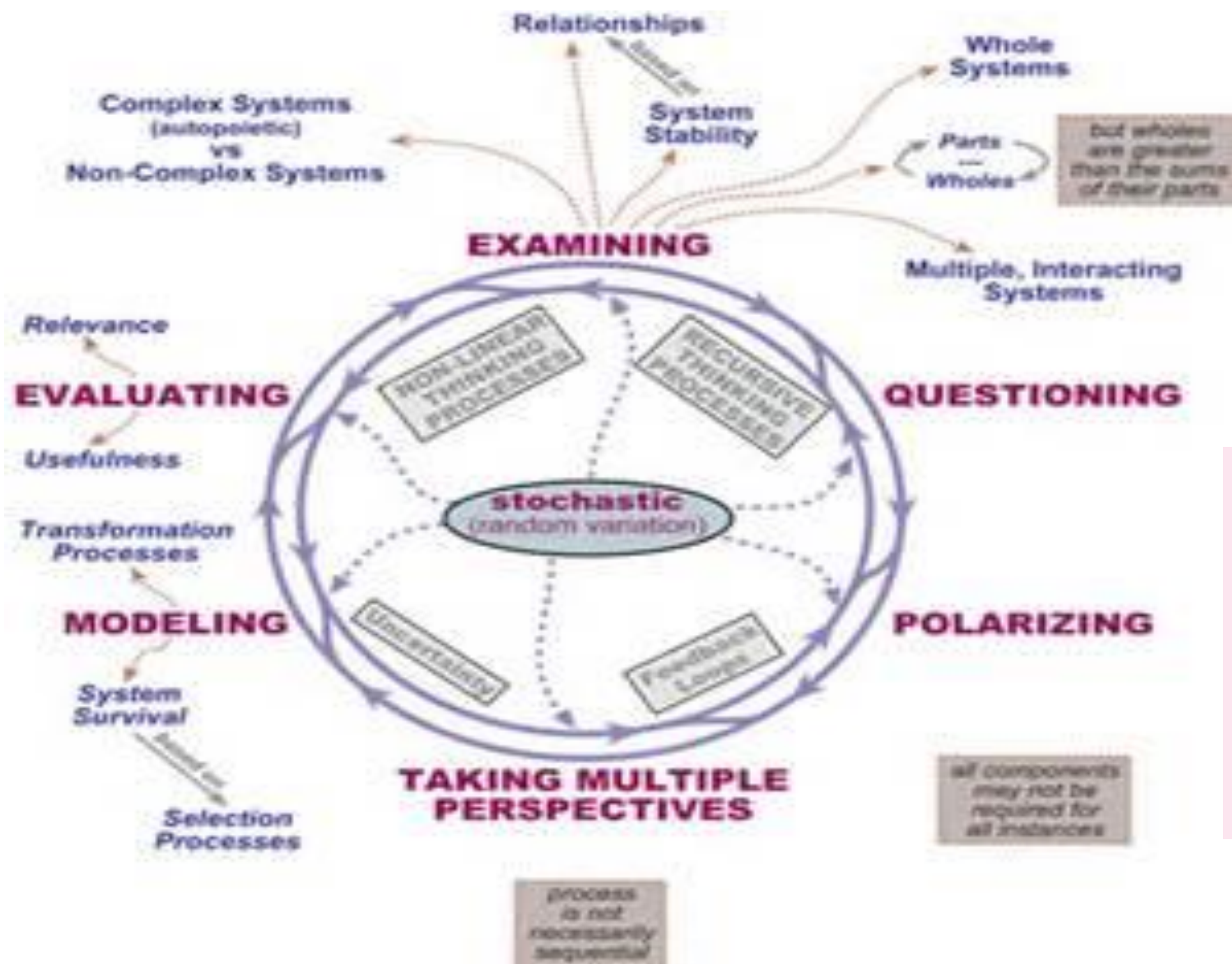
Cornerstones at strategy level



1. Working life orientation

A construction worker wearing a high-visibility green vest, a grey shirt, and a white hard hat is bent over, working on a construction site. The background shows a pile of rubble and debris. The worker is in the center of the frame, facing right.

**The privilege to work is a gift,
the power to work is a blessing,
the love of work is success!**



- 2. Systems thinking**
- positioning oneself
 - global perspective
 - entrepreneurship
 - understanding the customer

Group task, making the change 1

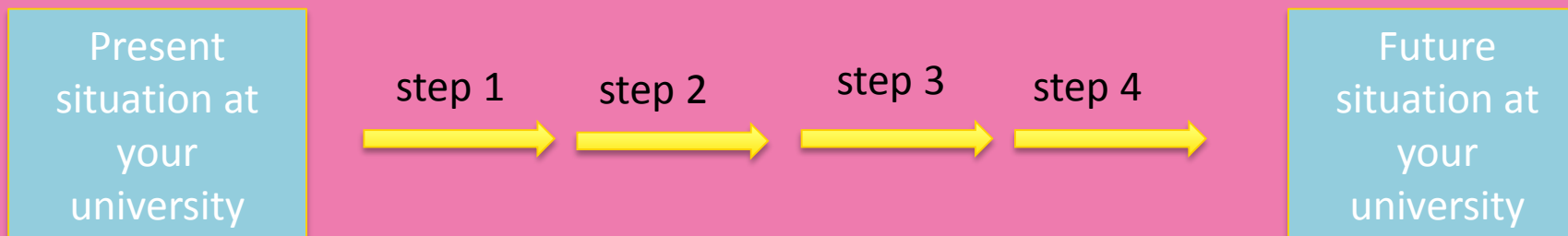
Working life orientation and systems thinking:

Current situation in your university? Is there a need for a change?

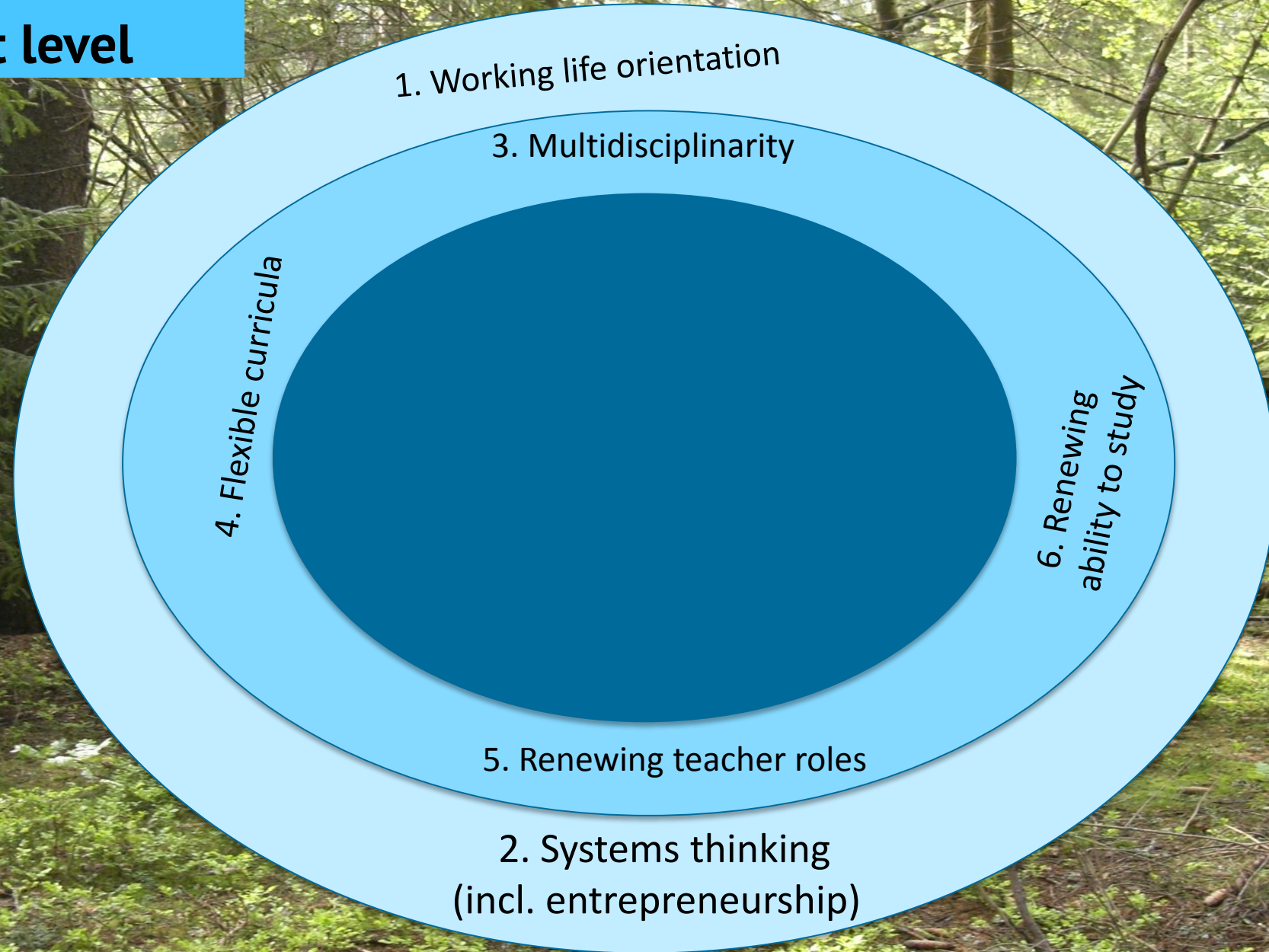
How would you like to see the future?

What kind of changes are needed?

List first steps to take in your university?

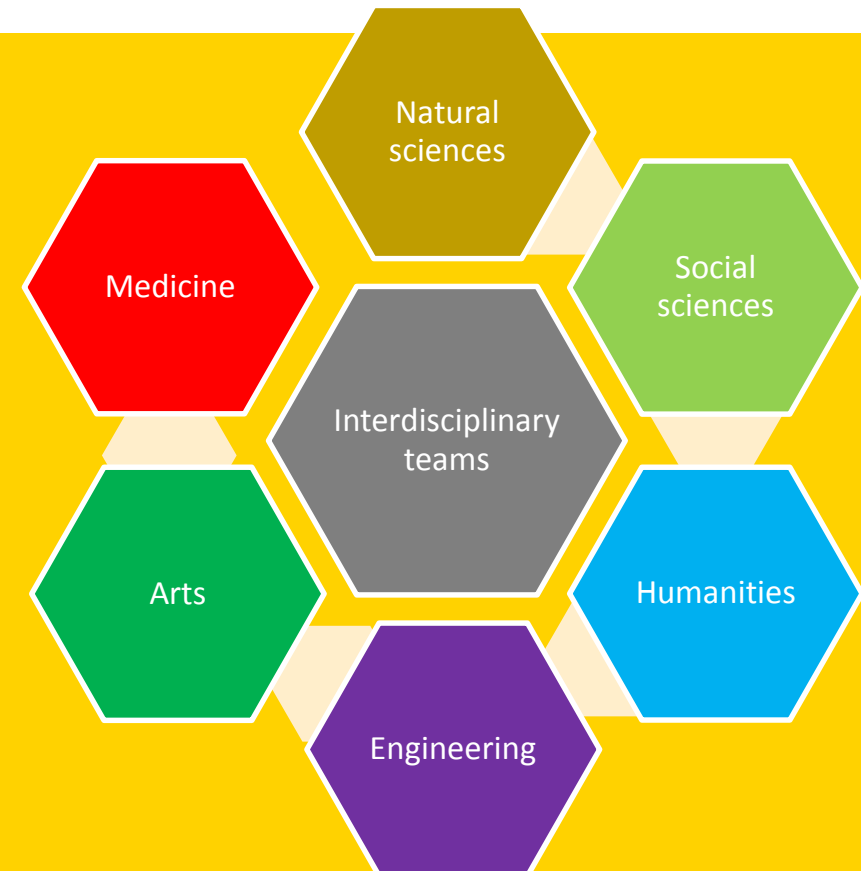


Cornerstones at department level



3. Multidisciplinarity

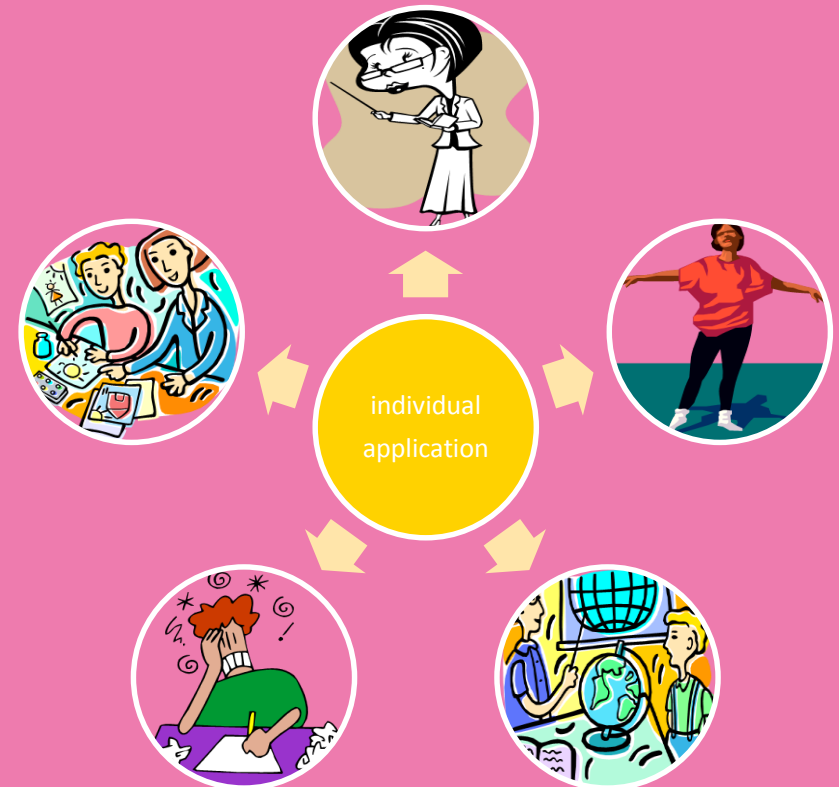
“We are not students of some subject matter but students of problems. And problems may cut right across the borders of any subject matter or discipline ”
Karl Popper





Multidisciplinarity is about boundary crossing

- **Boundary crossing theory focusses on the possibilities for making connections between different practices of which the boundaries are perceived as problematic (Engeström, 2014; Engeström et al.,1995).**
- **Boundaries are perceived to be socio-cultural differences leading to discontinuity in action or interaction (Akkerman & Bakker, 2011).**
- **Boundary crossing refers to a person's transitions and interactions across different positions and to efforts to accomplish or restore continuity in action or interaction between practices (Akkerman & Bakker, 2011; Suchman, 1993).**

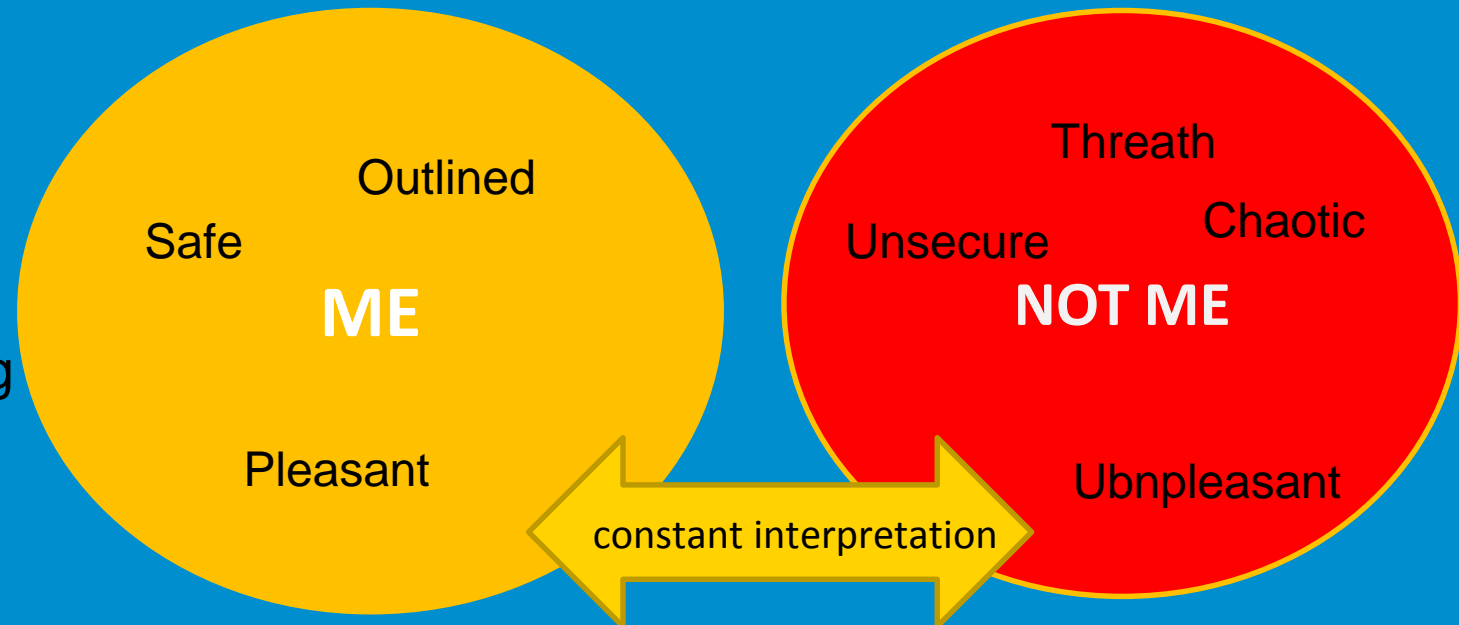




Experiencing multidisciplinary

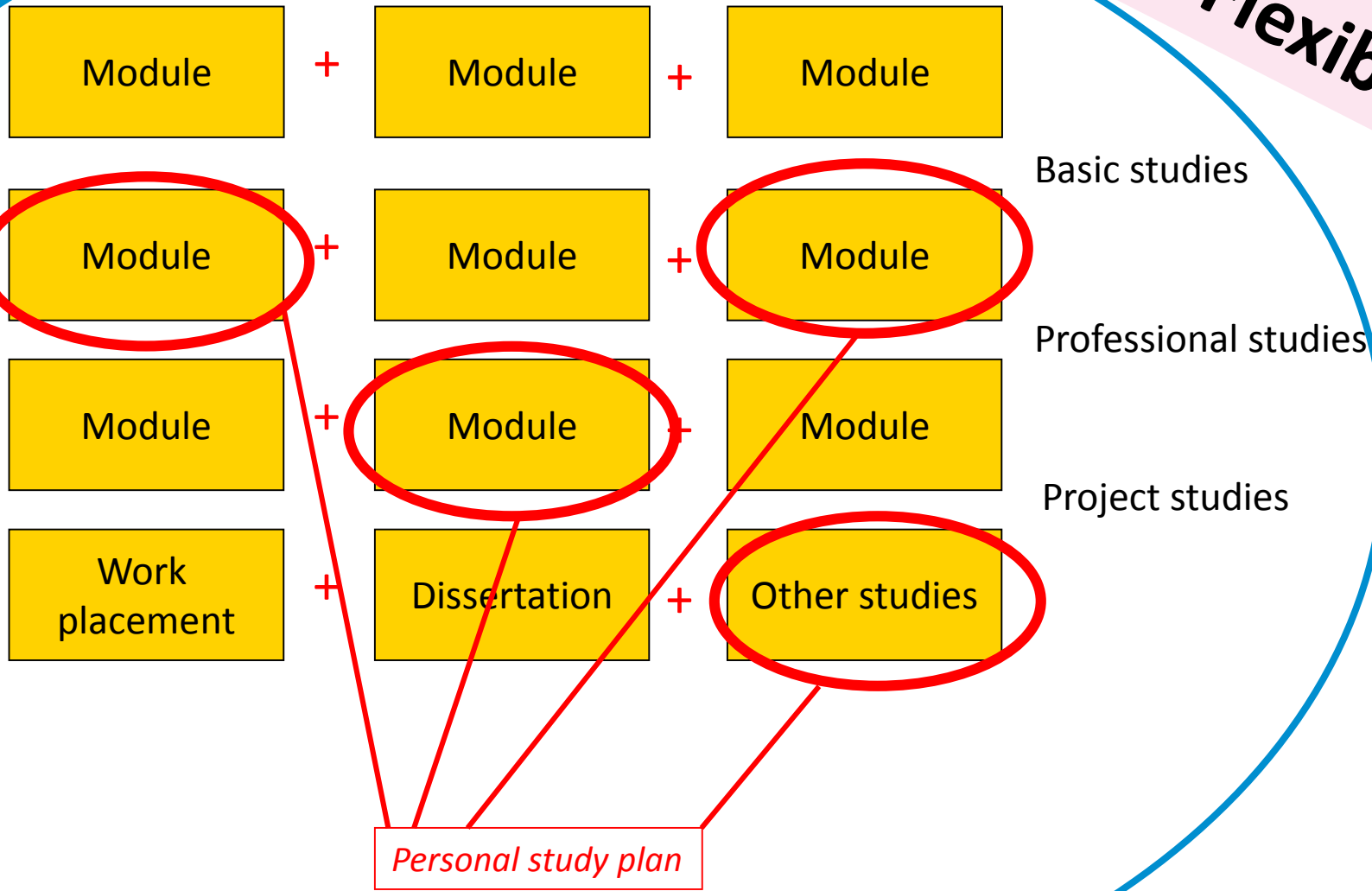
Stapley, Lionel (2005) *Individuals, Groups, and Organizations Beneath the Surface : An Introduction*

- We shape our world constantly to make it understandable and comprehensive
- It is done by categorizing
- We define ourselves by drawing boundaries
- Everything we understand as describing ourselves stays inside the boundaries



In our case we aimed to place our multidisciplinary inside ME

4. Flexible curricula



Degree 210 cr r 240 cr

“I am not
a teacher,
but an
awakener”

Robert Frost

5. Renewing teacher
roles



6. Renewing ability to study

Group questions

How do you support the student's renewing ability to study?

What obstacles do you see in your country?

How could these obstacles be overcome, give practical examples.

Group task, making the change 2

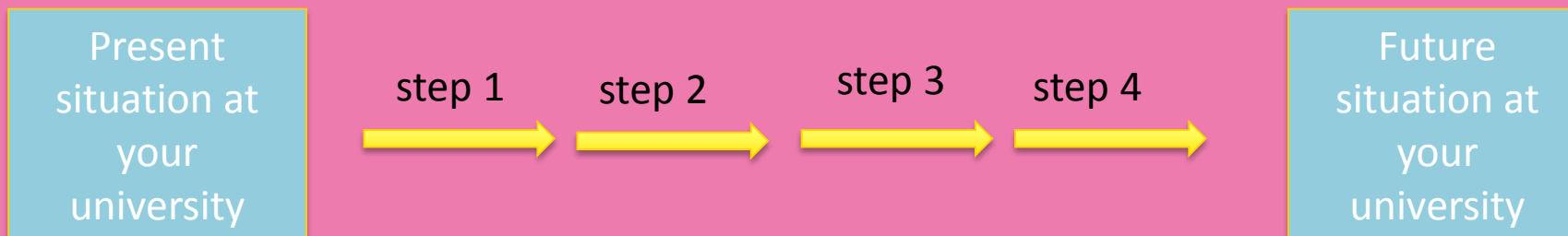
Flexible curricula, multidisciplinary, renewing teacher and student roles:

Current situation in your university? Is there a need for a change?

How would you like to see the future?

What kind of changes are needed?

List first steps to take in your university?



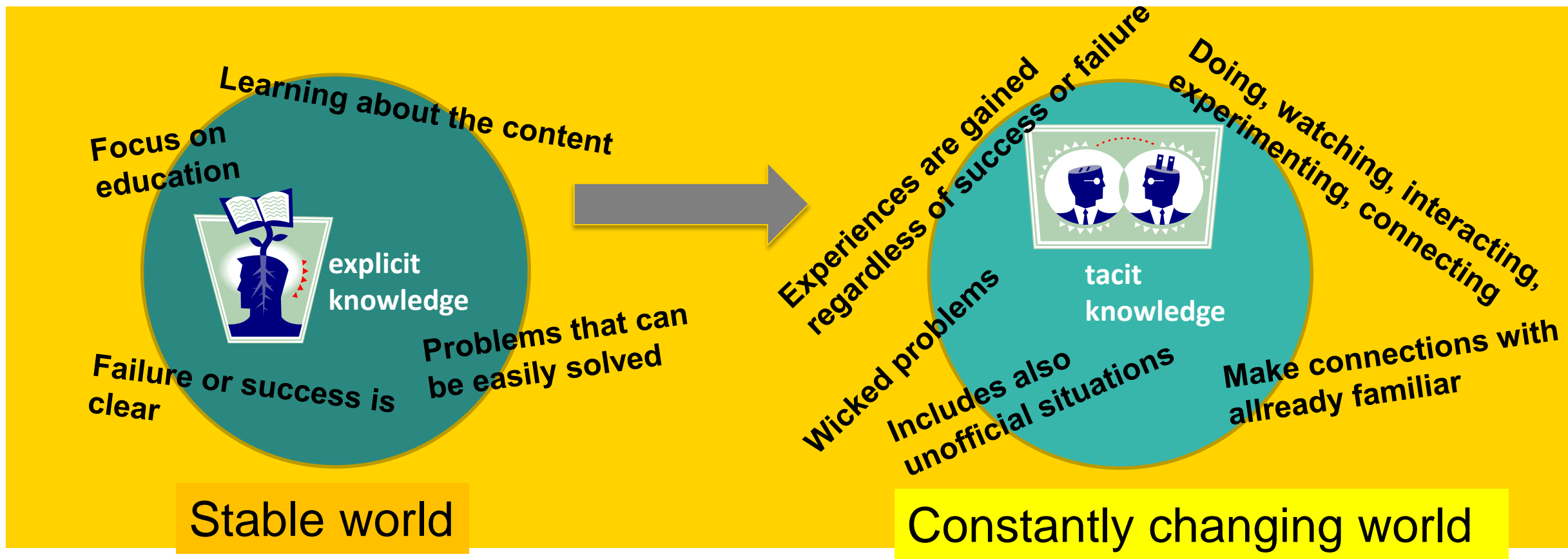
Cornerstones at faculty level

- 
7. Educational research, development and innovation methods (ERDIM)
 8. Assessment
 9. RDI embedded in learning
 10. Global perspective

7. ERDIM: In the university ...

Traditional university pedagogy

Innovation pedagogy



Group questions

How do you support the the renewing teacher roles?

What obstacles do you see in your country?

How could these obstacles be overcome, give practical examples.







Exercise

Six thinking hats

Every hat denotes a different way of thinking

Participants adopt the role and thinking process relating to the hat they have been assigned

Expressing a variety of opinions and ideas is usually easier through a character

| | | | |
|--------|---|---|---|
| White |  | Neutral Objective fact | What information is available? What information is needed? |
| Red |  | Emotion, intuition, hunches Can express opinions without factual basis | How do I feel about this? |
| Black |  | Critically-minded and cautious Attempts to identify risks and problems No emotional arguments | What are benefits and drawbacks of this proposal? What do I need to take into consideration? |
| Yellow |  | Positive and constructive attitude Considers the benefits to each solution No emotional arguments | What are the benefits? How can we achieve our goals? |
| Green |  | Brainstorming hat Creative and innovative Puts forward new ideas and possibilities | What other options and ideas are there? Could we do this differently? |
| Blue |  | Usually a leader Observes and forward plans the group's activities Provides summaries and conclusions | How do we approach this? |

EXAMPLE SCENARIO 1

Brainstorming ideas for an event, possibly with a recycling theme: The aim is to generate ideas for campaigns, performances and other activities. Even the most off-the-wall ideas are welcome.

1. The instructor introduces the topic and the objectives. The instructor then provides the instructions and introduces the hats.
2. The group choose a secretary who will make a note of all ideas and comments.
3. The participants form a circle to ensure that everyone can see and hear each other.
4. The hats are passed around the group one colour at a time to ensure that everyone has time to contribute.
 - The white hat begins: What are the practicalities? *When, where, etc?*
 - The red hat: What kinds of responses or expectations does this event evoke? *Beardy weirdies, chilled out day...*
 - The green hat: brainstorming – the wilder the better. What could the event look like? *Concerts, arts workshops...* It is a good idea to dedicate more time to the green hat round than the others.
 - The black hat: critical evaluation of the ideas put forward and the event as a whole. *Not everyone enjoys loud background music, what if it rains...*
 - The yellow hat: a positive approach to all the ideas put forward and the event as a whole. What are the benefits of this? *You inspire people, the arts workshops are a great way to...*
5. Now, all the ideas are done through and observations written down by the secretary. People responsible for organising the event analyse the results and use them to guide the event planning process.

Group work: Implementing ERDIM at your university

Make six groups

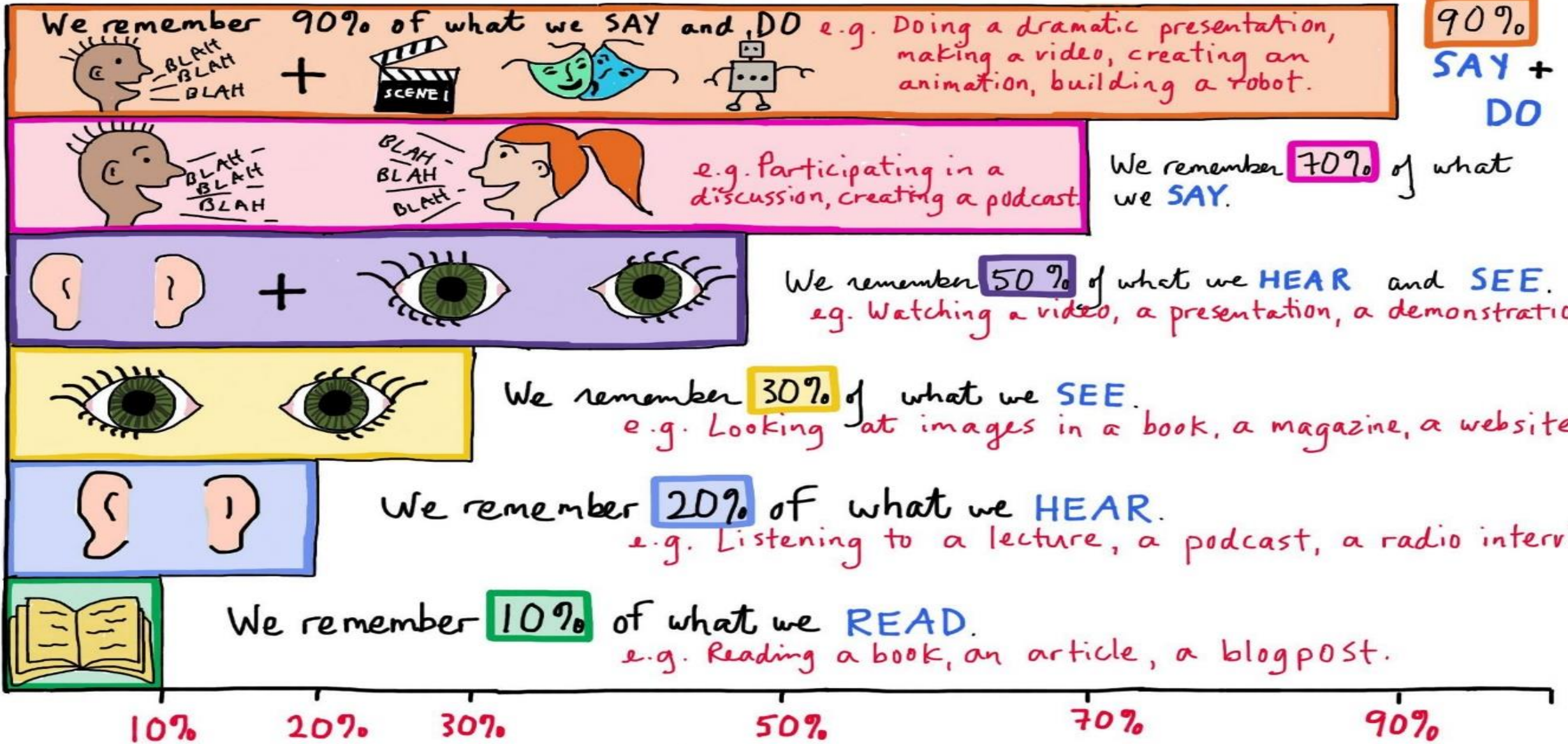
Every group gets one hat

Work accordingly to the idea of the hat you represent

Write down the most important and interesting results of your group

Choose one person to present the results of the work in the group to the whole audience

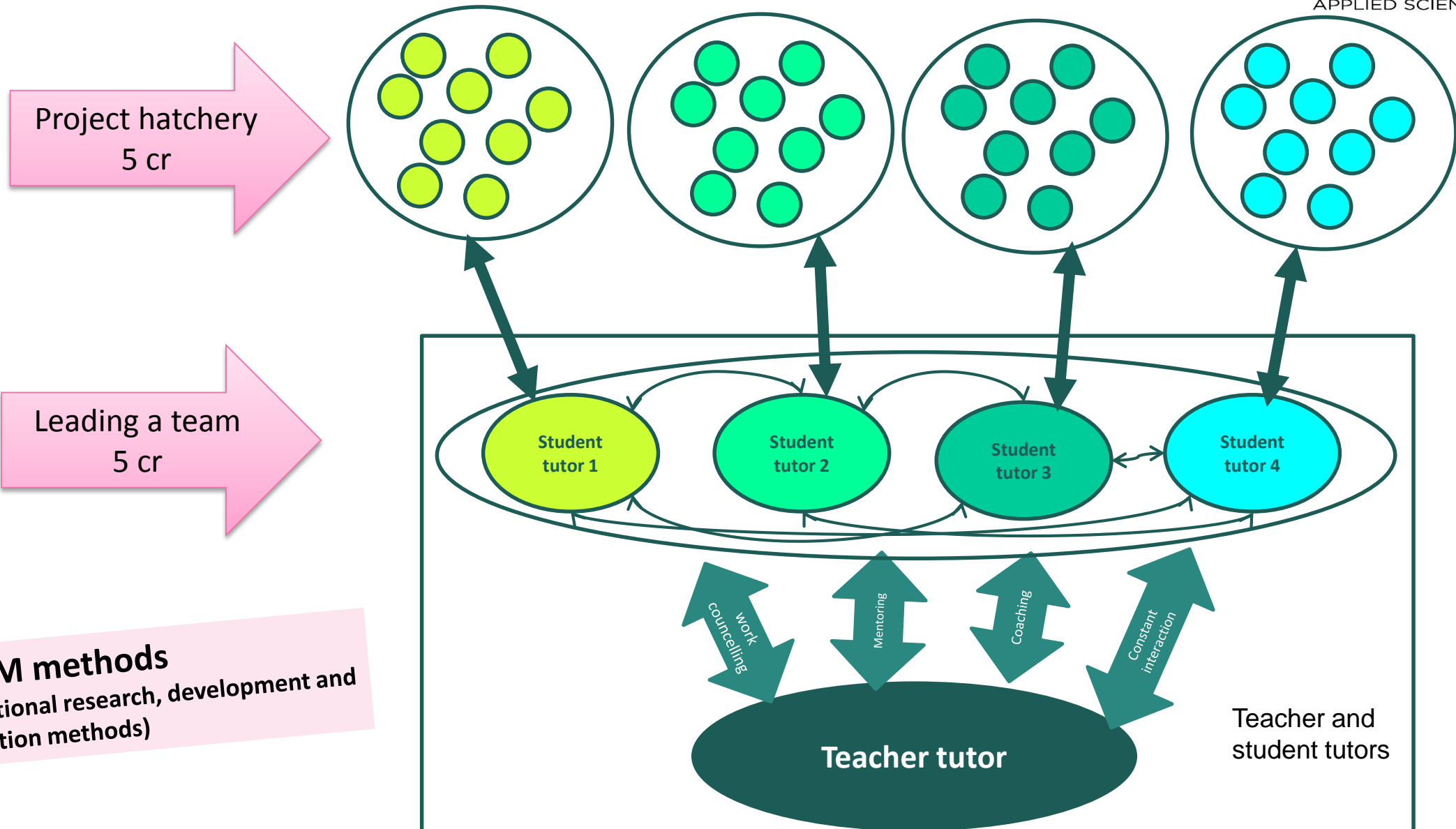
What We Remember



Based on the work of Edgar Dale

@sylvriaduckworth

Study units: project hatchery and leading a team



ERDIM methods
(educational research, development and innovation methods)

Flipped classroom

[https://www.youtube.com/watch?v=oXP
HN9gkWBk](https://www.youtube.com/watch?v=oXP
HN9gkWBk)

8. Assessment

The Purpose of...

assessment
is to
INCREASE
quality.

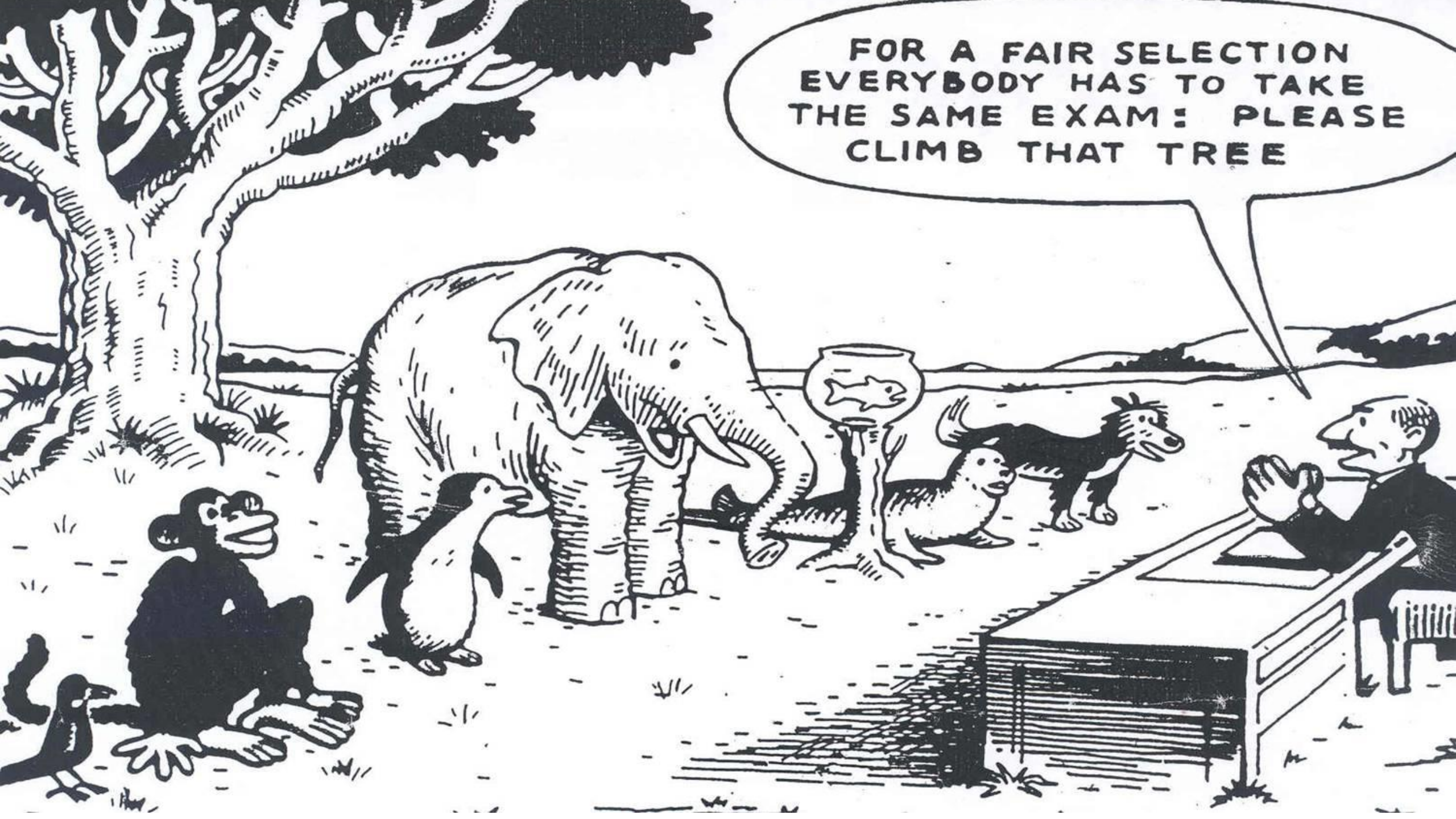


evaluation
is to **JUDGE**
quality.

Too short and
not enough
leaves. C-



FOR A FAIR SELECTION
EVERYBODY HAS TO TAKE
THE SAME EXAM: PLEASE
CLIMB THAT TREE





Brussels, 30.5.2017
COM(2017) 247 final

**COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
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FINCODA

Framework for Innovation Competencies Development and Assessment



Erasmus+ Knowledge Alliances project 1.1.2015-31.12.2017

FINCODA CONSORTIUM

| HE | COMPANY | OTHER |
|----------|--------------------------------------|-----------|
| TUAS, FI | Elomatic Ltd., FI | EENNW, UK |
| HAW, DE | Meyer Turku Oy, FI | |
| HU, NL | Lactoprot, DE | |
| MMU, UK | ECDL Foundation, NL | |
| UPV, ES | John Caunt Scientific Ltd., UK | |
| | Carter & Corson Partnership Ltd., UK | |
| | Celestica Valenciana S.A, ES | |
| Innopod | Schneider Electric España SA, ES | |



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Source: FINCODA

Research on innovation competences

- Co-funded by LLP
- How to measure innovation competencies
- theoretical background building INCODE barometer
- 2011-2013

INCODE

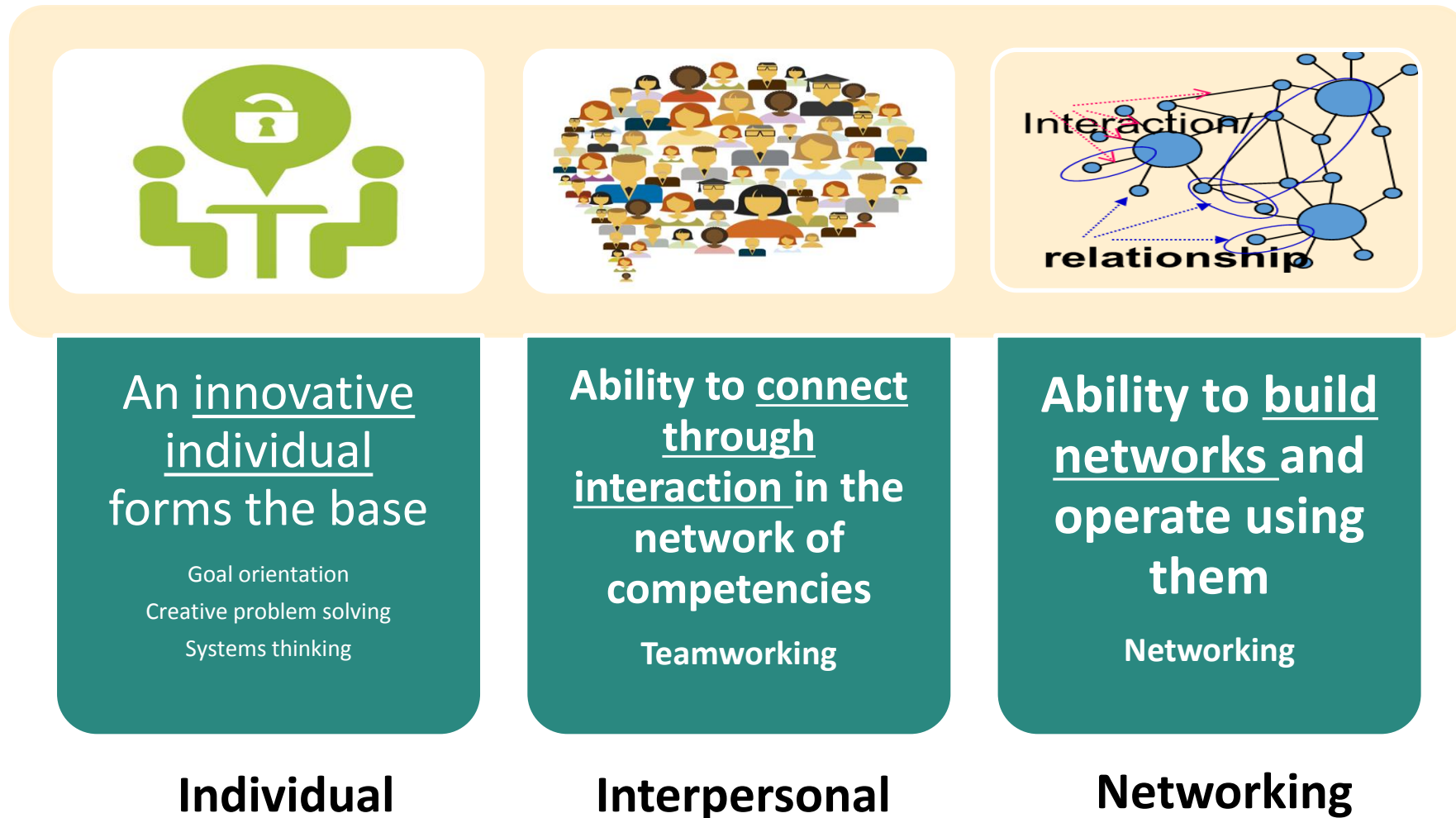
INNOKOMPPI

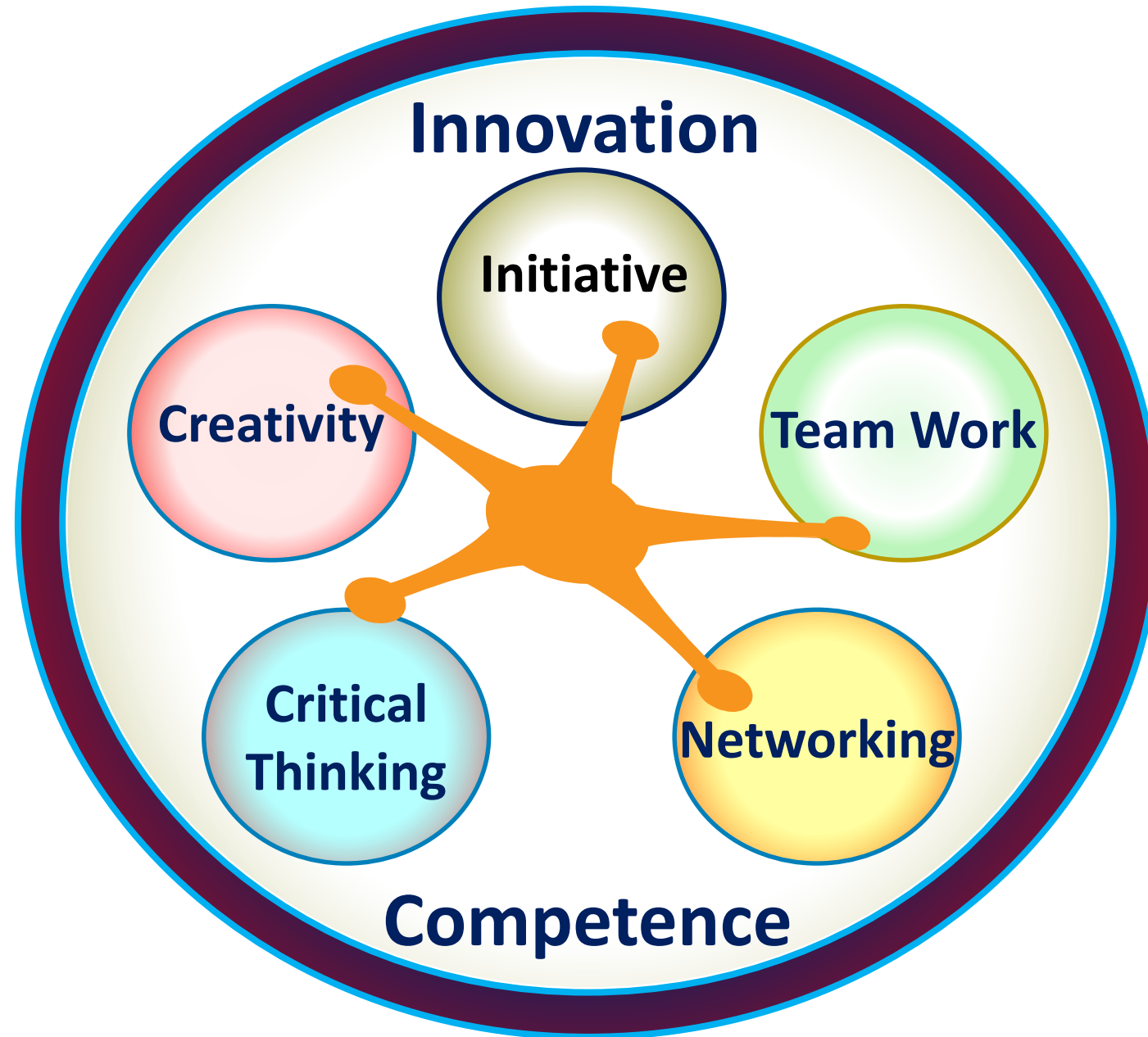
- Co-funded by ERF
- Validating the tool
- INNOKOMPPI barometer
- 2012-2014

- Co-funded by Erasmus KA
- From higher education to the enterprises
- FINCODA barometer to be used also in enterprises
- software application tool
- 2014-2017

FINCODA

Innovation competencies: INCODE project





FINCODA BAROMETER

| | | |
|----|--|--------------------------|
| 1 | Think differently and adopt different perspectives | (green=CREATIVITY) |
| 2 | Be attentive when others are speaking, and respond effectively to others' comments during the conversation | (yellow=TEAMWORK) |
| 3 | Use intuition and own knowledge to start actions | |
| 4 | Invite feedback and comments | |
| 5 | Foster improvements in work organization | (pink=INITIATIVE) |
| 6 | Obtain constructive comments from colleagues | |
| 7 | Find new ways to implement ideas | |
| 8 | Identify sources of conflict between oneself and others, or among other people, and to take steps to overcome disharmony | |
| 9 | Take an acceptable level of risk to support new ideas | |
| 10 | Go beyond expectations in the assignment, task, or job description without being asked | |
| 11 | Meet people with different kinds of ideas and perspectives to extend your own knowledge domains | (blue=NETWORKING) |
| 12 | Convince people to support an innovative idea | |
| 13 | Systematically introduce new ideas into work practices | |
| 14 | Act quickly and energetically | |
| 15 | Generate original solutions for problems or to opportunities | |
| 16 | Use trial and error for problem solving | (grey=CRITICAL THINKING) |
| 17 | Develop and experiment with new ways of problem solving | |
| 18 | Acquire, assimilate, transform and exploit external knowledge to establish, manage and learn from informal organisational ties | |
| 19 | Challenge the status quo | |
| 20 | Face the task from different points of view | |
| 21 | Make suggestions to improve current process products or services | |
| 22 | Present novel ideas | |
| 23 | Forecast impact on users | |
| 24 | Show inventiveness in using resources | |
| 25 | Search out new working methods, techniques or instruments | |
| 26 | Provide constructive feedback, cooperation, coaching or help to team colleagues | |
| 27 | Work well with others, understanding their needs and being sympathetic with them | |
| 28 | Share timely information with the appropriate stakeholders | |
| 29 | Consult about essential changes | |
| 30 | Build relationships outside the team/organization | |
| 31 | Refine ideas into a useful form | |
| 32 | Engage outsiders of the core work group from the beginning | |
| 33 | Ask "Why?" and "Why not?" and "What if?" with a purpose | |
| 34 | Work in multidisciplinary environments | |



9. RDI embedded in learning

TURKU AMK
TURKU UNIVERSITY OF
APPLIED SCIENCES

Co-operation with
working life? *

Research

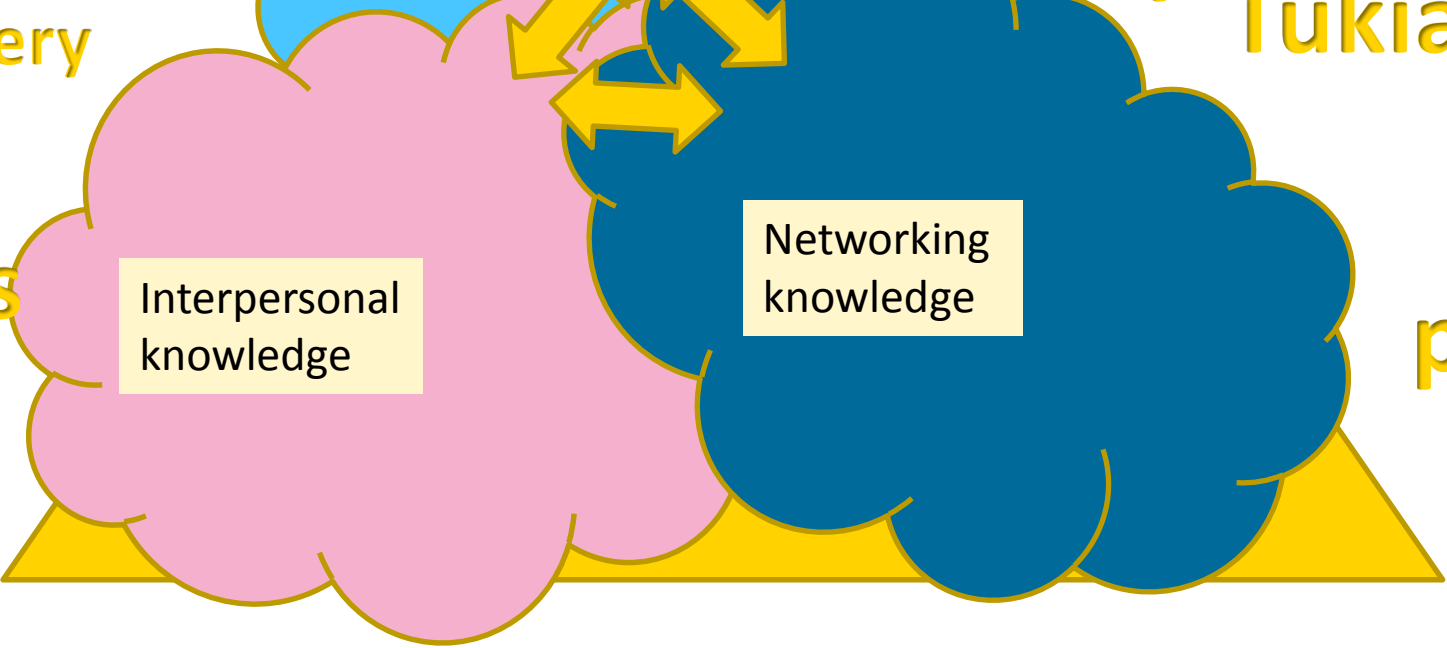
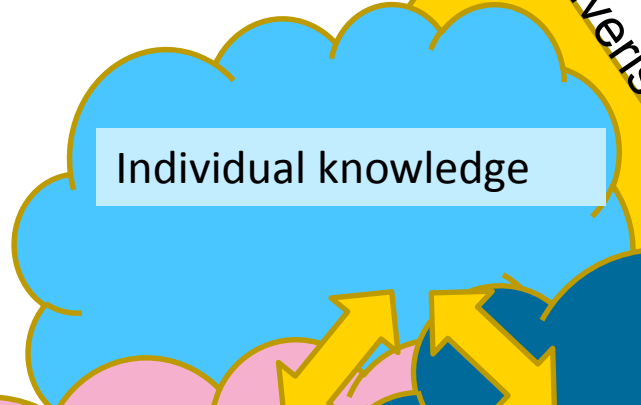
Guru Firma

Tukialus ?

SEC
projects

University

University of applied



RDI

Enterprises

?
Bisnesacademy

Monkey

? Project hatchery

Capstone

KTK

Co-operatives

Work placement

Group discussion

**If we want to change something, where do we start?
What are the first measures to be taken?**

Implementing Innovation pedagogy in the faculty: methods of intervention

Tutoring

means providing expertise, experience, and encouragement and general assistance in problem solving when the person to be tutored finds answers by him/herself. (Chin, Rabow & Jeimee 2011.)

Coaching

is a training or development process via which an individual is supported while achieving a specific personal or professional competence result or goal. (Minor 2014.)

Process consultation

puts the emphasis on helping others to help themselves, not on solving their problems for them or giving them advice. (Beddoe 2010,

Keskinen 2010)

Mentoring

A mentor can help to prioritize projects to be done and provide a set of “good practices” for how to approach a given problem. A mentor can also help to understand how change occurs, as well as how to plan for and implement change (Minor 2014)

Supervision

is an ongoing and regular process which aims at learning through interaction. Supervision provides the chance to stand apart from our work and to reflect on what we do, the context of what we do and the impact that this has on ourselves as professional people. (Schein1987, Sandoval 2014)

The process

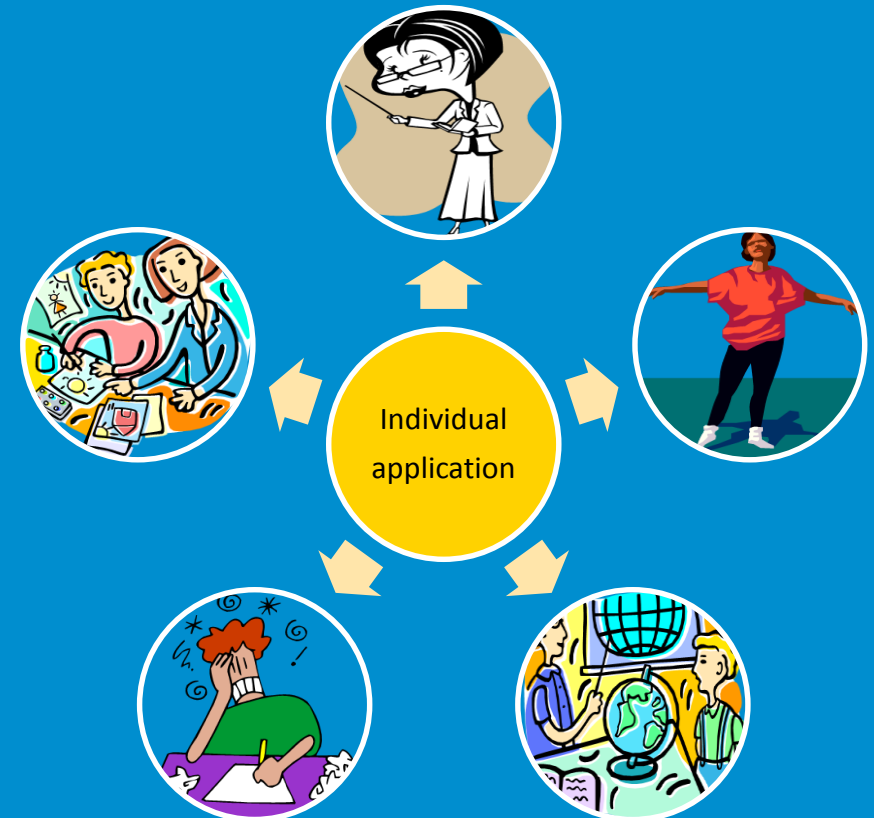
Underlying assumptions and challenges in the process

Questioning the way how people work

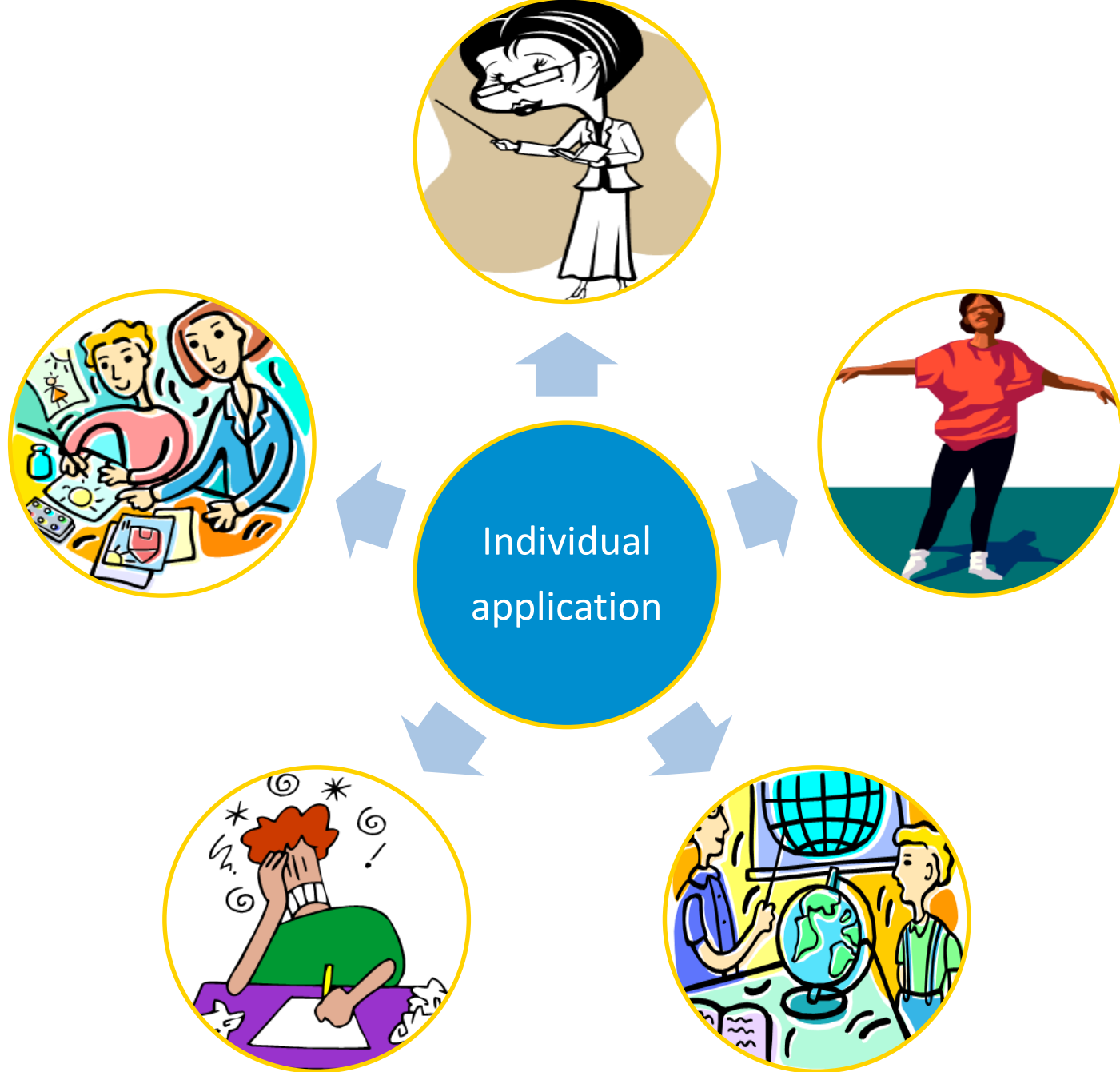
A change from a very independent profession to working in teams and networks

Changing the attitude towards leaning among students and faculty members

Mistakes were made: the "not invented here" phenomenon was met



The process



Underlying assumptions and challenges in the process

Questioning the way how people work

A change from a very independent profession to working in teams and networks

Changing the attitude towards leaning among students and faculty members

Mistakes were made: the "not invented here" phenomenon was met

The process of introducing change

Working with the artifacts

Making innovation pedagogy visible

Introducing cooperation between
faculty members

Activating students and giving them
responsibility of their learning

Building trust across boundaries

Contributing to the exposed values in the faculty

Introducing forums to talk about the new way

Innostudio

Innoteam

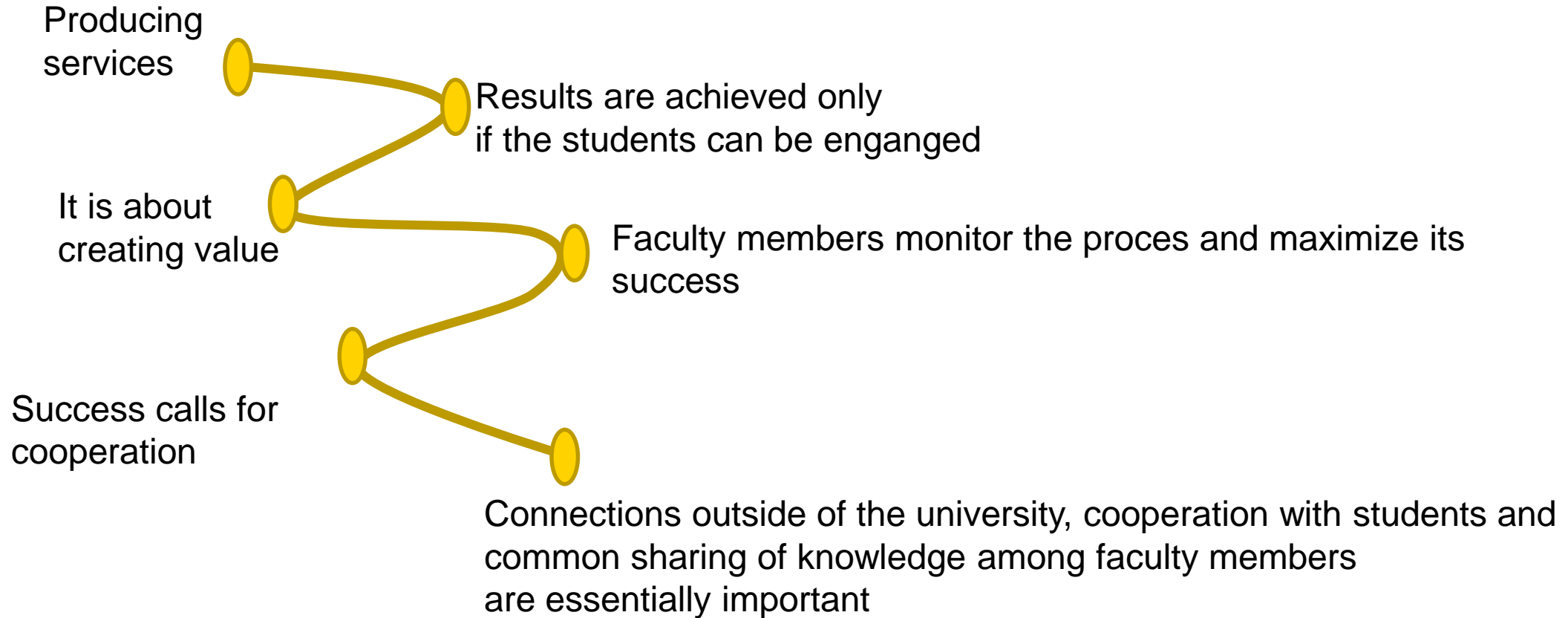
Development seminars for the whole
faculty

Involving also students in the discussion

Common multidisciplinary study unit for the
whole faculty : Project hatchery

Producing education is service business and cocreation of value

(Vargo & Lusch 2004)



Discussion

Excellence in action

Good atmosphere in the faculty

The common project hatchery is not questioned any more

Faculty members work together across study programs

Better practices are shared among faculty

New ways of making learning more effective are found every year

Research and development ideas are born

Innostudio has become common practice

Students have taken a more active role in the different development processes

Thank you!

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