Creation of Civil Engineering Competence Framework in Project CALOHEE

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Towards a more reliable model for evidence based learning and quality assurance and enhancement

Twenty-first Century Challenges

Millions of students finish university education every year. They enter the labour market with sets of competences based on their personal experiences and their studies.

- ***Are they really prepared for the jobs they go after?***
- ***What are the demands of employers?***
- ***Are they equipped to fully engage with their civic responsibilities?***
- ***Are universities up to speed?***
- ***Do existing quality assurance instruments offer sufficient evidence to answer those questions?***
- ***Can institutional performances be compared to identify best practices?***

Civil Engineering Frameworks

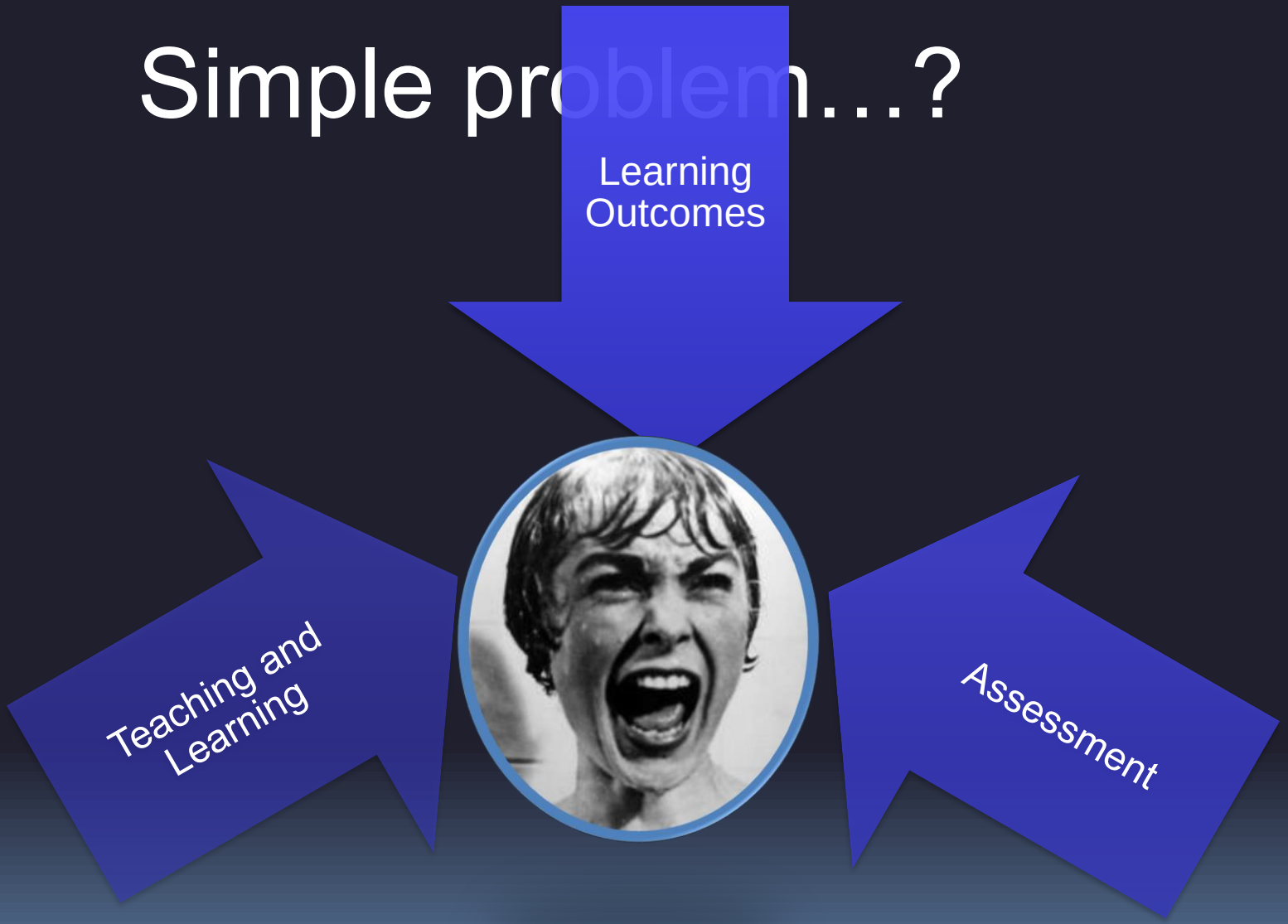
- Tuning-AHELO framework;
- EUCEET framework;
- EUR-ACE framework;
- International Engineering Alliance (IEA) framework;
- ABET framework;
- Conceiving, Designing, Implementing, Operating (CDIO) Initiative framework;
- National Society of Professional Engineers framework;
- American Society of Civil Engineering (ASCE) framework.

CALOHEE Dimensions model

1. Do justice to the character of specific academic domain
2. Structures sets of learning outcomes in a logical way
3. Allows for combining existing frameworks

Subject area/ Dimension	*Civil engineering*	*Teacher Education*	*History*	*Nursing*	*Physics*
1.	Knowledge and understanding	Knowledge management and creation	Human beings: Cultures and Societies	Professional values and the role of the nurse associated competences	Knowledge and understanding
2.	Analysis and problem solving	Design and management of processes of learning, teaching and assessment	Texts and Contexts	Nurse practice and clinical decision making competences	Mathematical methods
3.	Design	Learner empowerment, potential and creativity	Theories and Concepts	Knowledge and cognitive competences	Experimental design and scientific investigation
4.	Investigation	Communication	Interdisciplinarity	Communication and interpersonal competences	Problem solving
5.	Practice	Values and social leadership	Communication	Leadership, management and team working	Scientific (physics) culture
6.	Decision making	Development as professionals and life-long learners	Initiative and Creativity		Ethical awareness
7.	Team-working		Professional development		Communication
8.	Communication				Management and teamwork
9.	Lifelong Learning				

Simple problem…?



Teaching and learning

- Flexible process;
- Respects and attends to the diversity of students and their needs, enabling flexible learning paths;
- Considers and uses different modes of delivery, where appropriate;
- Properly uses a variety of pedagogical methods;
- Regularly evaluates and adjusts the modes of delivery and pedagogical methods;
- Includes learning outcomes as goals of T&L.

About TALOE Webtool

Welcome to the TALOE webtool that will help you decide which e-assessment strategies to use in your online courses. The tool can be used in two ways:

- Check if the existing assessment methods in existing course are in line with the stated learning outcomes
- Help you make decisions on the most appropriate assessment method for the new course or module

The webtool consists of the matrix that aligns the six categories of the cognitive process dimension and relative cognitive processes with the six categories of the general assessment (based on the ALOA model) each with subcategories.

How to use the webtool

The TALOE webtool will guide you through two steps that will help you to better define your learning outcomes and to decide adequate assessment strategies for each learning outcome.

Step 1
During this stage you will be asked to describe the Learning Outcomes you want your students to achieve. Please keep in mind that the Learning Outcomes should be described in a clear way and kept simple. If you have difficulties with this stage, or you wish to learn more about how you can better write learning outcomes please go to the section Writing Learning Outcomes.

Step 2
After defining your learning outcome you will be asked to choose the verb/verbs that best describe it.

Go through the process and receive the assessment advice for your course!

Submit your feedback!

TALOE Project

Recent News

2nd TALOE Newsletter is now available

TALOE - Time to Assess Learning Outcomes in E-learning

Reference No:
543097-LLP-1-2013-1-PT-KA3-KA3MP
Duration:
01.01.2014 - 31.12.2015
Key Activity 3: Multilateral projects
Website: http://taloe.up.pt
Contact:taloe@up.pt

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1. **Multiple Choice Questions (MCQ):** Remember, Understand, Apply, Analyse, Evaluate and Create.
2. **Essays:** Speculative essay, Quote to discuss, Assertion, Write on, Describe/Explain, Discuss, Compare, Evaluate and Problem.
3. **Problem solving:** Routines, Diagnosis, Strategy, Interpretation and Generation.
4. **Practical work**: Demonstration, Exercise, Structured enquiry, Open-ended enquiry and Project
5. **Short-answer questions:** Select crucial evidence, Explain methods, procedures and relationships, Present arguments, Describe limitations of data, Formulate valid conclusions, Identify assumptions, Formulate hypothesis and Formulate action plans.
6. **Reflective Practice Assignments**: Concrete experience, Reflective observation, Abstract conceptualization and Active experimentation.

Example from CALOHEE – Civil Engineering

Dimension 6 : Decision making			
	Knowledge	Skills	Wider Competences (Responsibility and Autonomy)
Level 6 descriptor (First cycle/ Bachelor)	Demonstrate awareness of the key aspects of professional, ethical and social responsibilities linked to management of civil engineering activities, decision making and judgment formulation.	Manage work contexts in civil engineering subject area, take decisions and formulate judgments.	Identify appropriate and relevant approaches to manage work contexts in civil engineering subject area and reflect on professional, ethical and social responsibilities in taking decisions and formulating
Assessment	**Essays** **Problem Solving** **Practical Work**	**Essays** **Problem Solving** **Practical Work**	**Problem Solving** **Practical Work** **Reflective Practice** **Assignments**
Teaching	**Lectures** **Seminars** **Tutorials** **Flipped classroom** **Blended teaching**	**Exercise courses / Practical classes** **Problem-based classes** **Design-based classes** **Role play** **Peer review**	**Problem-based classes** **Design-based classes** **Work-based practice** **Role play** **Peer reviewing**
Learning	**Attending lectures, seminars** **Participating in flipped classroom** **Blended learning** **Problem-based learning** **Design-based learning**	**Participating in exercise courses/ practical classes** **Problem-based learning** **Design-based learning** **Practising professional skills**	

Tuning CALOHEE

ありがとう!

Thank you!

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