ONLINE ENGINEERING EDUCATION AND THE INFLUENCE OF COVID-19: SOME REFLECTIONS!

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1. REFLECTIONS

- Transposing
- Repository
- Little training
- General advices
- Mobilisation
- No rules
- Legislation
- Students, staff, teachers, administrators

2. TEACHING ONLINE COMPETENCY FRAMEWORK

- Need to perform online without proper training.
- Not enough to place materials on the web or use Zoom!
- Teacher online reference framework?
- CALOHEE (www.calohee.eu) - "Guidelines and Reference Points for the Design and Delivery of Degree Programmes in Teacher Education“, Julia M. González Ferreras and Maria Yarosh

REFERENCE FRAMEWORK OF GENERAL DESCRIPTORS OF A BACHELOR PROGRAMME,

Knowledge (K)

Advanced knowledge of a field of work or study, involving a critical understanding of theories and principles

Skills (S)

Advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialised field of work or study

Autonomy and Responsibility (A)

Manage complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work or study contexts

1. KNOWLEDGE MANAGEMENT AND CREATION

- Advanced knowledge of major conceptual elements required of an online teacher as knowledge manager and creator. (K)
- Ability to develop different types of thinking and apply these to different situations determined by online, curricular, pedagogical and policy needs. (S)
- Capacity to envisage consequences of position taking and commitment to act with intellectual consistency. (A)

2. DESIGN AND MANAGEMENT OF PROCESSES OF LEARNING, TEACHING AND ASSESSMENT

- Knowledge of online management and digital content and format design and enhancement: teaching, learning and assessment processes. (K)
- Ability to evaluate and select appropriate techniques and strategies of online management and content syllabus enhancement: teaching, learning and assessment processes. (S)
- Capacity and commitment to ensure that the different elements of the online course contribute to the development of desired learner profile (A)

3. LEARNER EMPOWERMENT, POTENTIAL AND CREATIVITY

- Advanced knowledge of theories, strategies and tools in online context that can support learner empowerment, and development of learner fullest potential and creativity. (K)
- Ability to apply theories, strategies and tools in online context that can foster the development of the fullest potential and creativity of each learner. (S)
- Capacity and commitment to contribute to maintenance of online contexts of engagement with each learner holistic growth and development. (A)

4. VALUES AND SOCIAL LEADERSHIP

- Advanced knowledge of different value systems and of how to identify and promote those which can foster the fulfilment of the online teacher's professional mission. (K)
- Ability to identify and implement online approaches and actions required to address the social needs; ability to analyse consequences of different value choices and to manage diversity. (S)
- Capacity and commitment to build a sense of social responsibility in the choices made at personal, professional and contextual levels and act on needs and potentialities identified. (A)

5. COMMUNICATION

- Advanced understanding of different critical elements, methods and tools for communicating at online level, as well as in groups and society as a whole. (K)
- Ability to identify and apply resources for improving online communication at different levels, as well as stay upto-date with digital developments. (S)
- Capacity and commitment to foster transparency and responsibility in online interactions, in teams and groups, as well as in social media. (A)

6. DEVELOPMENT AS ONLINE PROFESSIONALS AND LIFE-LONG LEARNERS

- Advanced knowledge of sources, tools, mechanisms and main digital trends of personal and professional updating. (K)
- Ability to critically examine applied educational research and improve own practice following evidence based approaches. (S)
- Capacity and commitment to act as a critically reflective member of an international online teaching community that values evidence-based practice. (A)

3. Evaluation

"Assess is a form of the Latin verb assidere, meaning "to sit with." In an assessment, one sits with the learner. It is something we do with and for the student, not something we do to the student."

— G. Wiggins, cited in Joan Green, 1998, Authentic Assessment: Constructing the Way Forward for All Students

Online

- **Student:** Success.
- **Teacher:** Compliance.
- **Society:** Assurance.

TALOE – TIME TO ASSESS LEARNING OUTCOMES IN E-LEARNING

What do we hope students will learn?

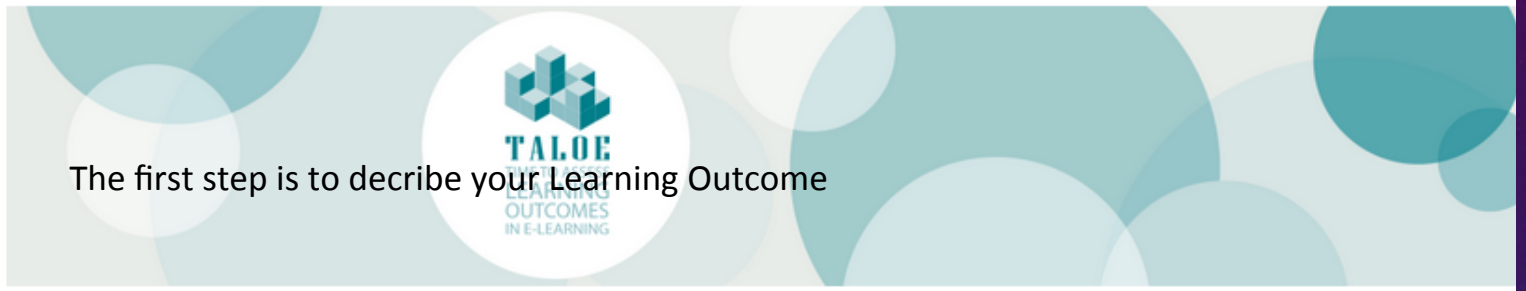
How do we know that they have learned?

SIMPLE PROBLEM…?

Learning Outcomes

Assessment

The first step is to decribe your Learning Outcome



About TALOE Webtool | Ask for Assessment Advice | Writing Learning Outcomes | Assessment Methods | Case Studies | Help

Ask for Assessment Advice

1: Choose the learning outcome you want your students to achieve. You can write the learning outcome in the box bel

Insert the descripton of Learning Outcome here

Step 2: Please select from one or more of the tabs below the verb or the verbs (maximum 3) that better describes the Learning Outcome:

Remember	Understand	Apply	Analyze	Evaluate	Create

- [ ] Recognizing – Locating knowledge in long-term memory that is consistent with presented material
- [ ] Recalling – Retrieving relevant knowledge from long-term memory

Check assessment methods

3. Eportfolio: Assessment for a better learning (https://teaching.berkeley.edu/resources/assessment-and-evaluation/design-assessment/e-portfolio)

“E-Portfolio

An electronic portfolio (e-portfolio) is a purposeful collection of sample student work, demonstrations, and artefacts that showcase student's learning progression, achievement, and evidence of what students can do. The collection can include essays and papers (text-based), blog, multimedia (recordings of demonstrations, interviews, presentations, etc.), graphic.

Portfolios are considered as a learning and assessment tool

Student Learning:

E-portfolio has been used to facilitate, document, and archive student learning. It is a learning tool for students to clarify their educational goals, integrate and solidify learning through reflection, and showcase achievement to potential employers. By having students reflect on what they learned, how they learned it, and how much they learned, they start to take control of their own learning. As students select their representative work and reflect on what they learned, they start to make sense of their educational experiences in various courses and derive new meaning out of the process.”

- 3. EDEN: How to design and manage assessments for online learning (http://www.eden-online.org/how-to-design-and-manage-assessments-for-online-learning/)

One of the more urgent questions facing educators today is: How do I manage assessment in online learning environments?
In this webinar of EDEN's Education in a Pandemic Series, this question and others related to the topic of online assessment were addressed. For example, how do we ensure academic integrity? How can we ensure that our students aren't cheating? What measures can we put in place to ensure learning is happening and to assess it effectively?

4. Future

- **Behaviour:** Experience in China https://www.techspot.com/news/74719-chinese-school-using-facial-recognition-analyze-students-emotions.html

- China has high schools using AI technology to monitor students' facial expressions, letting teachers know what emotions the students are experiencing.

- Hangzhou No. 11 Middle School is experimenting the tech as part of its "Smart Classroom Behaviour Management System." The three cameras placed above the blackboard analyse pupils by scanning them every 30 seconds and determining if they're happy, confused, angry, surprised, fearful, or disgusted. They are also designed to log six types of student behaviours: reading, writing, hand raising, standing up, listening to the teacher, and leaning on the desk.

4. Future

- Simulation: Construction Safety using Immersive Reality
  http://csetir.civil.auth.gr/

- Simulation as training and education facilitator
- Possible use in certification
- Adjusted to each situation
- Standardising of training possible
- Adjustable to existing budget
- Use on site or on training facility
- Possibilities are immense (**Fulmax**)

4. Future

- **AI and learning: Teaching Commons**

  https://teachingcommons.stanford.edu/resources/teaching/evaluating-students/assessing-student-learning/artificial-intelligence-assessment

"In AI assessment, a software system infers problem-specific rules for automated scoring from examples of instructor grading of student assignments.

AI techniques are applied to learn how an instructor grades a problem. The instructor evaluates a sample set of student responses, and the system creates a computer model incorporating rules it inferred about the instructor's grading decisions. The model is then used to grade other students' work.

The strengths of AI assessment are efficiency, consistency in applying the same criteria across students, and immediate and detailed feedback on performance."

4. Future

- Lifelong learning online achievements
- http://microcredentials.eu/

  - Digital badges
  - Indicators of skills or competencies
  - Towards a credential
  - Cumulative
  - Continuing Professional Development
  - Security: Block-chain
  - Recording formal, informal and non-formal learning

4. Future

- Data, tools and communication with learners will improve education.
  - Universal
  - Accessible
  - Dialogue
  - Information
  - Personal

4. Future

Inequality

One size does not fit all

- Graphic
- Verbal
- Sinestesic
- Kolb learning styles

4. Future

Training

Dedicated Support

Time or Money incentives

Student workload

Accreditation/quality

Proper LOs

4. Future

Community and Fora

Cheaper?

Equal value?

Digital competency to teach and learn

Platforms to share

4. Future

Content simplified

Summative assessment + feedback

Deconstruct f2f didatics

Role of universities – recognition

4. Future

Personal learning environment

Authentic learning

Research and innovation

Policy makers

Inclusion, diversity

Thank you!

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