

Tutorial proposal:

Title: ASSET Learning programme model and accompanying tools

Authors: Eleni Aikaterini Leligou, Panagiotis Karkazis

Preferred length: half day

Theme and goals, indicating why the topic is timely and relevant

This tutorial will focus on the presentation of the ASSET learning graph model which significantly facilitates the reuse of learning materials and structures. An online tool supporting easy creation and easy search of educational programmes' designs and materials adopting this model has also been developed and will be presented.

The goals are:

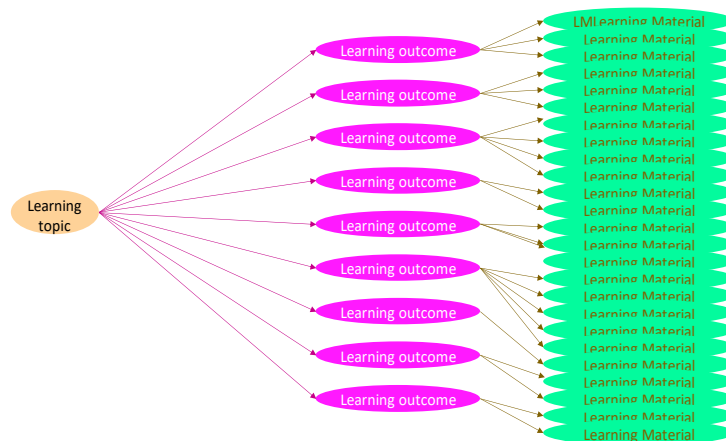
- a) to inform the trainers/trainers/professors of the value the adoption of such a model will offer them
- b) to inform them about the existence of the public platform where they can exploit and share educational resources
- c) to emphasize on the need to collaborate to meet the rapidly evolving market demands in knowledge
- d) to let them experience the benefits of adopting the learning graph model and of engaging with ASSET tools
- e) to gather valuable feedback to improve the tools and augment the community around it.

The topic is highly timely and relevant because it addresses the fast and efficient creation of high quality educational programmes which is a mandate in the knowledge-based economy of nowadays.

The model is applicable in many scientific domains tightly bound to economy sectors such as the domains of energy transition, of artificial intelligence and of industry 4.0.

Description of content to be covered.

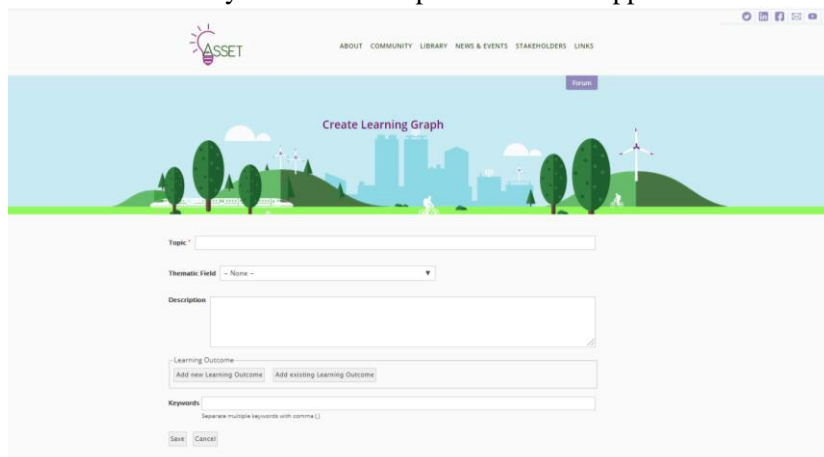
For the definition of any programme / course, according to the literature, the basic elements of instructional design are: a) Learning topics, general statements of what we want our students to learn, that express the main learning goal (as such they are usually broad); b) learning objectives, which are measurable sub-goals of a lecture/unit; c) Learning outcomes which consist of the specification of what a student should learn as the result of a period of specified and supported study. To facilitate resource sharing, on the ground that each learning outcome is associated with one learning topic (through the learning objective), we propose a *tree-shaped structure* where each learning topic is sub-divided in multiple learning objectives and each learning objective in multiple learning outcomes and each learning outcome can be achieved through multiple learning materials, without significant loss of generality or flexibility. On the other hand, we consider it mandatory to establish a widely accepted and recognised vocabulary for the description of the learning outcomes, which can be widely adopted as a concept. The ASSET proposed learning model includes the following elements: Learning topic; Learning outcomes ; Learning materials.



For each educational programme, we define a learning topic, which is categorised under a specific field according to the well adopted taxonomies.

To extract value of the theoretical model, we have developed and present in this tutorial, a web-based application supporting the design of learning tree instances and the sharing of resources among all users of the application. Trainers create their own trees and enrich each element of the tree with relevant metadata so that these can be easily searched by other trainers. The trainers can search either for learning materials towards accomplishing a learning outcomes as well as for “structures”. For example, they can search to find learning outcomes under specific topics of their interest. This significantly accelerates the design of new courses.

This resource sharing will help trainers address the challenge of educating/training large numbers of both students and professional (which need to be updated) with limited resources. This challenge is met today in the energy sector, in the sector of artificial intelligence and or industry 4.0. Another important feature of the proposed model and tool is that it can assist in building interdisciplinary courses as a professor may look and identify colleagues and resources that could match the programme he intends to build. For example, enriching a postgraduate course with elements of “growth mindset” or of “responsible research”. Without the proposed tool, one should invite an expert while through the platform this is significantly facilitated since the platform allows for easy finding of relevant learning outcomes and their creators, learning materials can easily be shared and professors are supported to created blended courses.



Once the ASSET learning model is presented along with the benefits it brings, the relevant digital tool will also be presented and the attendees will be prompted to experience the easiness of creating their own courses, possibly re-using materials from other actors and making them

useful for other colleagues worldwide. This will collaboratively and gradually increase the efficiency and quality of educational and vocational training.

Intended audience: Professors and teachers/trainers of adults
Reasonable number of attendees: from 5 to 40.

The expected background of the attendees: no particular background knowledge is necessary although experience from at least one educational programme design would be valuable.

Evidence of interest: professors from diverse universities and training organisations (UNIWA, NKUA, HOU, OTE Academy) and from diverse departments from these universities

Description of the format and activities planned.

The tutorial will be organized as follows:

- Part 1: Learning graph model of ASSET and rationale for its use (led by Ass. Prof. Leligou, duration approx. 30min)
- Part 2: Tutorial on the use of the learning graph (online) tool developed by UNIWA (led by Assistant Prof. Karkazis, duration approx. 40 min)
- Part 3: Attendees are invited to a) familiarize with the tool using their own laptops and b) create their own educational programmes mixing their own resources with resources available in the tool (45 minutes)
- Part 4: Attendees are invited to bond in teams to create interdisciplinary education programmes using the presented tool (50 minutes)
- Part 5: Evaluation of the model and the tool and discussion about its value and additional features that could increase its value. (30 minutes)

Expected outcomes. The attendees will be able to create their own educational programmes in a easier and faster way adopting the presented model and will be also able to share their resources through the tool.

Relevant experience of the organizers: Both organisers are professors with more than 10 years experience in research, thus they possess the necessary presentation skills. Additionally, ass. Prof. Leligou is the scientific coordinator of the H2020 -ASSET project developing the model and the tool that will be presented in this tutorial and ass. Prof. Karkazis is member of the research team of the same project. They have both taught numbers classes and presented digital tools as part of their everyday activities in the university and in research projects.

A/V facilities and other equipment needed: the organisers will have their laptops and they needs just a projector. The attendees are assumed to bring their own laptops as they typically do when attending a conference.