Learning scenarios – from concept to pratice

Educational Robotic and Programming

Agrupamento de Escolas Dr. Augusto Cabrita	Associação Nacional de Professores de Informática	Erzin Mesleki Ve Teknik Anadolu Lisesi	Liceo Classico E Linguistico Carmine Sylos	Technikum Teb Edukacja W Lubinie	Sucessos Criativos, Lda
Portugal	**Portugal**	**Turkey**	**Italy**	**Poland**	**Portugal**

Currently teaching approaches

- Project based learning

- Problem based learning

- Inquiry based learning

- Scenario based learning

- Reflective learning in teacher education

- (…)

have gained considerable attention…

The use of technology…

…requires teachers with certain digital competencies in order to use the teaching technology and make the learning process more interesting to students.

that the most fundamental problem encountered during the learning-teaching process is that students memorize the new information and fail to convey what they have learned into new situations.

KNOWLEDGE TRANFER

The use of technology…

Mark Prensky stated that

"*The True 21st Century Literacy Is Programming*"

BUT

'*the equation': computer science = programming, which is accused of killing interest in computer science among school students in 1990*"

HOWEVER

Not all students will become professional programmers, but by writing their own programs, they practice creative and computational thinking, and gain skills of the digital era, which are useful for their professional and personal lives.

Global and European Initiatives

- Hour of code

- European Coding Initiative

- (…)

- In a study on the level of the European Commission

"*point out that European citizens have become consumers of ready-made software products, and conclude that digital literacy (a set of basic skills) and computer science (research subject) are essential components of modern education. Under the influence of various trends, special emphasis has been placed on the development of algorithmic/computational thinking, which becomes one of the core competencies for the 21st Century*".

Global and European Initiatives

- The DigComp Framework pointed out that digital content creation represents one of the five major digital competence areas, which includes the competence of programming, described as

"*the ability to plan and develop a sequence of understandable instructions for a computing system to solve a given problem or perform a specific task*."

Global and European Initiatives

- The DigCompEDU Framework The DigCompEdu Framework aims to capture and describe these educator-specific digital competences by proposing 22 elementary competences organised in 6 areas.
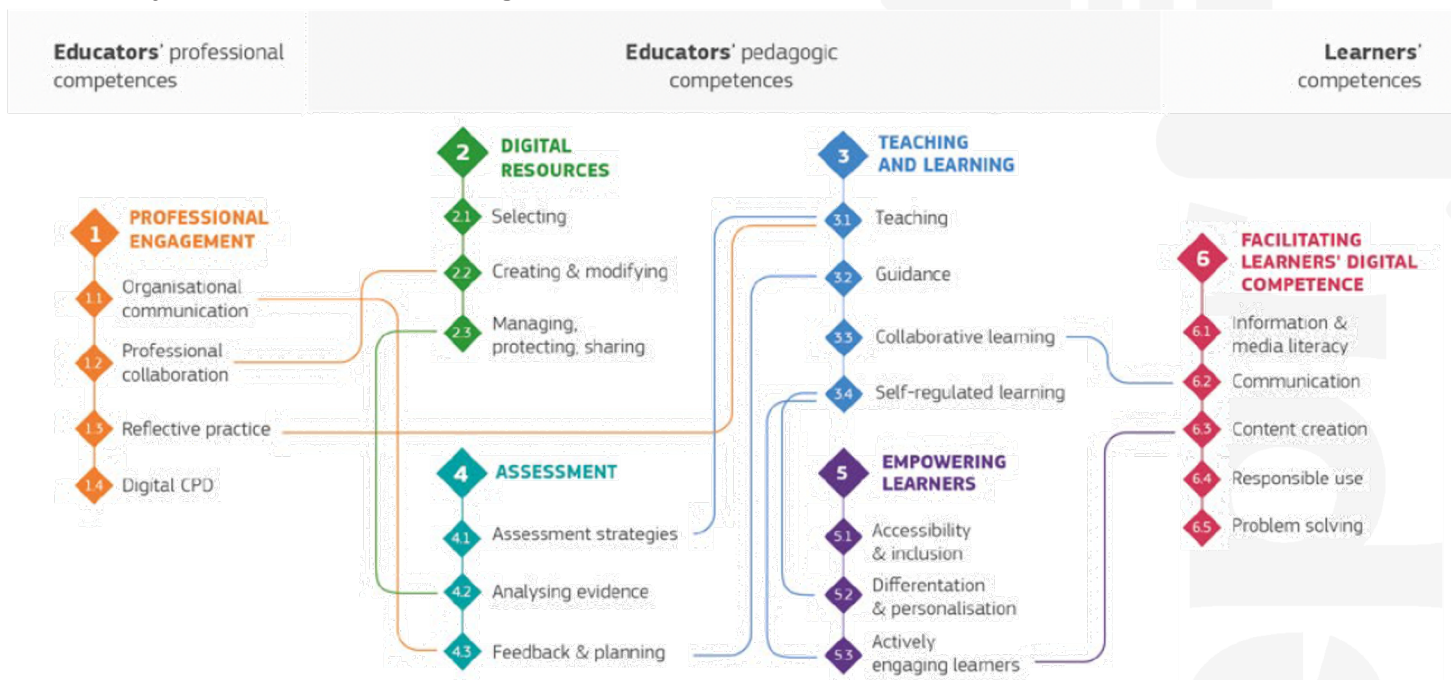
Role of teachers

- Within this context, teachers who are one of the most outstanding elements of education should possess skills of being able to implement approaches that would enable students to carry out active learning.

- Education is based on research, exchange of information, teamwork, connecting different cognitions and applying knowledge and skills.

- Such a curriculum encourages critical thinking, self-conceptualizing conclusions, solving problems, creativity in approach and communication among students.
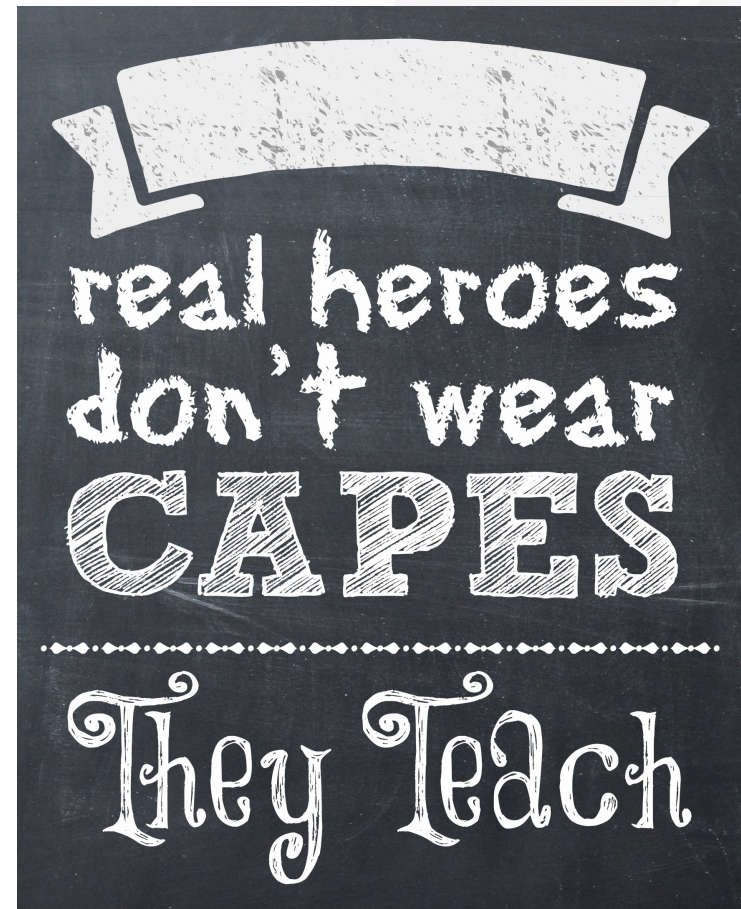
Role of teachers

Teachers can, only by observing, quickly ascertain:

…if learners are fulfilling their tasks

… while they can also rearrange groups or reassign activities

…give some additional explanations

… ask questions to help learners understand and accomplish their tasks…

I'M A Teacher NOT A MAGICIAN BUT I UNDERSTAND YOUR CONFUSION
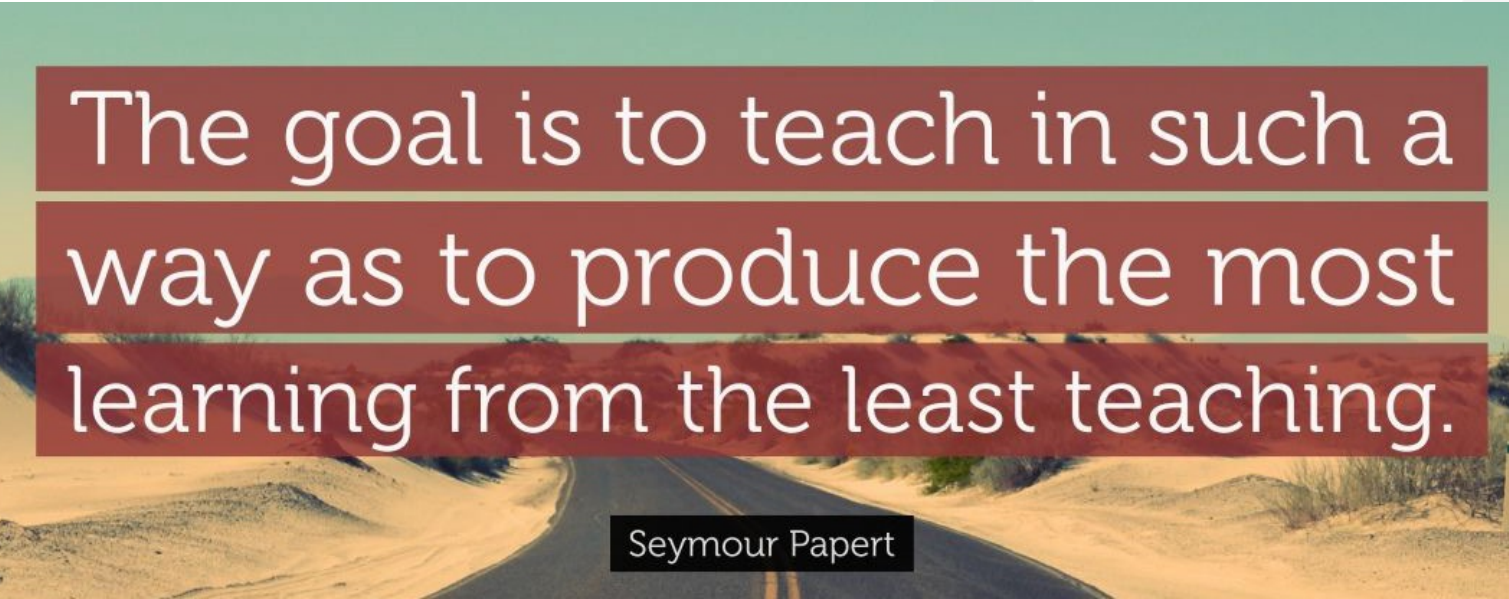
Learning scenarios

In a learning situation, any of the following may be designed with a specific pedagogic intention:

- learning resources and materials;

- the learning environment;

- tools and equipment;

- learning activities;

- the learning programme or curriculum

Student activities should be at the center of the design process, and they should be carefully aligned with the desired learning outcomes and with the processes of assessment and review.

Learning scenarios

Student activities should be at the center of the design process, and they should be carefully aligned with the desired learning outcomes and with the processes of assessment and review.

The goal is to teach in such a way as to produce the most learning from the least teaching.

Seymour Papert

Learning scenarios

- A learning scenario can be defined as document that gathers details to represent a learning experience, rich in collaboration, experimentation and creativity.

- Learning scenarios can include suggestions that complement the use of digital technologies, which relate elements such as the organizational design of the environment, roles and actors, plot, strategies, actions, reflection and regulation.

Learning scenarios

Learning scenarios are materials intended for teachers that offer innovative and imaginative ideas for conducting teaching activities using modern pedagogical methods with the use of appropriate digital content and tools.

It is useful to distinguish activities from tasks:

TASKS are required from learners by the demands of the curriculum.

ACTIVITIES are engagement of learners in response to the demands of a task.

Learning scenarios

- Designing a learning scenario is therefore a process by which teachers plan or structure a learning situation.

- A scenario consists of a subject and class, a level of complexity, key concepts, learning outcomes and a description of activities supplemented with materials and resources for the teacher and students. One of the main features of problem-based learning is the use of real-life scenarios as a starting point for the learning process. Scenarios are considered to provide a meaningful context for the concepts and principles that will relate to future knowledge acquisition.

Learning scenarios - Design

- Bearing in mind the principles and concepts presented above, the following structure is proposed for the creation of learning scenarios.

- It should be noted that it is not intended to be a model to be followed blindly, but rather a reference to be transformed according to the objectives, the context in which learning takes place.

Learning Scenario Template

References

CARNet, e-Schools: Teaching scenarios available at: https://scenariji-poucavanja.e-skole.hr/about-teaching-scenarios/ [20.11.2021]

European Commission, Joint Research Centre, "The 'Computational Thinking' Study", available at: https://ec.europa.eu/jrc/en/computational-thinking [18.01.2017.]

K. Jakee, "Overhauling Technical Handouts for Active Student Participation: A Model for Improving Lecture Efficiency and Increasing Attendance", International Journal of Teaching and Learning in Higher Education, vol. 23 (1), 2011, pp.98-108. Available at: https://files.eric.ed.gov/fulltext/EJ938584.pdf [20.01.2018.]

M. Prensky, "From digital natives to digital wisdom: Hopeful essays for 21st century learning". Corwin Press CA, 2012.

Mezak, J., & Papak, P. P. (2018, May). Learning scenarios and encouraging algorithmic thinking. In 2018 41st International Convention on Information and Communication Technology, Electronics and Microelectronics (MIPRO) (pp. 0760-0765). IEEE.

Redecker, C. (2017). European framework for the digital competence of educators: DigCompEdu (No. JRC107466). Joint Research Centre (Seville site).

Vuorikari, R. (2020). DigComp 2.0: The Digital Competence Framework for Citizens. Update Phase 1: the Conceptual Reference Model. European Commission. Luxembourg: Publication Office of the European Union, 2016