FACILITATE – AI

GUIDELINES FOR FACILITATING THE LEARNING OF ARTIFICIAL INTELLIGENCE
BY SCHOOL STUDENTS OF GRADES 7-12

Guidelines for facilitating the learning of Artificial Intelligence (AI) by School Students of Grades 7-12

Reference Number: 2021-1-CY01-KA220-SCH-000032567

C1 Training course: Training on Artificial Intelligence (AI) content for adapting to school curricula

Result 1 - A1/T1
Module Number and Area/Topic: Module 1 – AI STEAME Models of Learning
Module owners: ITC- School, CY CyMS

Introduction and Broad Description of the Context and Goal of the area/topic addressed

The intent of this module is to briefly introduce the classic learning models according to pedagogical theory, and then make a brief mention of the functioning of artificial intelligence and its applications.

The second part intends to support teachers to implement PBL related to AI to help teachers who are not AI experts and students to understand what AI is and show some elements of how it works. Show how the human reasoning process that leads to making decisions, such as a "decision tree", is the basis of some AI applications, showing how tools that use AI are able to analyze and organize data and use these data to make predictions. This can lead to a transformation in the way of teaching and learning.

Learning objectives and **learning outcomes** *(from the short description: Competences List of the Training Modules)* are described on the side of the descriptions of the different activities of this module:

1. To design, plan and implement the use of digital technologies in the different stages of the learning process
2. To use digital technologies to offer timely and targeted guidance and assistance
3. To use digital technologies to foster and enhance learner collaboration
4. To enable learners to use digital technologies as part of collaborative assignments, as a means of enhancing communication, collaboration and collaborative knowledge creation
5. To experiment with and develop new forms and formats for offering guidance and support
6. To use digital technologies to support learners' self- regulated learning i.e. to enable learners to plan, monitor and reflect on their own learning, providing evidence of progress, share insights and come up with creative solutions
7. To ensure accessibility to learning resources and activities, for all learners, including those with special needs.
8. To use digital technologies to address learners' diverse learning needs, by allowing learners to advance at different levels and speeds, and to follow individual learning pathways and objectives.
9. To use digital technologies to foster learners' active and creative engagement with a subject matter.
10. To use digital technologies within pedagogic strategies that foster learners' transversal skills, deep thinking and creative expression.
11. To open up learning to new, real-world contexts, which involve learners themselves in hands-on activities, scientific investigation or complex problem solving

Competences *(from the AI Competence Framework)*

1. Enhancing the effectiveness of teaching
2. Interacting through digital technologies
3. Collaborating through digital technologies
4. Self-regulated learning
5. Using assessment strategies
6. Providing feedback to learners
7. Adapting accessibility and inclusion
8. Adapting differentiation and personalisation
9. Actively engaging learners

Instruments/Tools/Supporting Material/Resources to be used:

1. https://cdn.iste.org/www-root/Libraries/Documents%20%26%20Files/Artificial%20Intelligence/AIGDEL_0820-red.pdf
2. www.PangeaFormazione.com
3. https://sliceofml.withgoogle.com/#/
4. https://it.akinator.mobi/
5. https://www.youtube.com/c/SefikIlkinSerengil/featured
6. https://sefiks.com/2018/08/27/a-step-by-step-cart-decision-tree-example/
7. http://elearning-let.unicas.it/home/wp-content/uploads/2018/03/Didattica-Lezione_03.pdf
8. https://blog.osservatori.net/it_it/intelligenza-artificiale-funzionamento-applicazioni
9. http://www.rivistabricks.it/2020/03/03/integrare-coding-e-pensiero-computazionale-nella-didattica/

PART 1 - Models of learning	
Learning Objectives	Understand the pedagogical theories of model of learning and the different AI approces.
Learning Outcomes	Understand that at the base of Artificial Intelligence there are algorithms, computational techniques, solutions, therefore able to replicate human behavior. Identify the main classes of solutions.

PART 2	
Learning Objectives	"Create an AI Expert Guessing Game" PBL project is illustrated as a practical example to: • Clarify the double role of AI in the pedagogic environment: topic to be learn and support for the activities • Highlight the main areas where AI and digital tools could support the learning process • Guide the students and teacher in getting the foundations of basic algorithms used in AI (e.g. decision tree) starting from a manual approach to a full developed tool
Learning Outcomes	• Illustrate a structural approach where the students are guided through a PBL project to develop an initial understanding of AI • Understand how the supporting role of the AI in the preparation and development of a project

	• Combine and harmonize the teacher competence development about AI topics at the same time as students
Competences	● To design, plan and implement the use of digital technologies in the different stages of the learning process ● To use digital technologies to offer timely and targeted guidance and assistance ● To use digital technologies to foster and enhance learner collaboration ● To enable learners to use digital technologies as part of collaborative assignments, as a means of enhancing communication, collaboration and collaborative knowledge creation ● To experiment with and develop new forms and formats for offering guidance and support ● To use digital technologies to support learners' self- regulated learning i.e. to enable learners to plan, monitor and reflect on their own learning, providing evidence of progress, share insights and come up with creative solutions ● To ensure accessibility to learning resources and activities, for all learners, including those with special needs. ● To use digital technologies to address learners' diverse learning needs, by allowing learners to advance at different levels and speeds, and to follow individual learning pathways and objectives. ● To use digital technologies to foster learners' active and creative engagement with a subject matter. ● To use digital technologies within pedagogic strategies that foster learners' transversal skills, deep thinking and creative expression. ● To open up learning to new, real-world contexts, which involve learners themselves in hands-on activities, scientific investigation or complex problem solving
Activities	• Project setup and pedagogical rationale • Project step by step activities and digital links