

TRAINING	THE SCIENCE OF LEARNING: COGNITIVE PSYCHOLOGY FOR STEM TEACHERS
TRAINING AREA	145 - TEACHER TRAINING SPECIFIC DISCIPLINARY AREAS
FORM OF ORGANIZATION	<i>On-Site</i>
MODE	Continuous
WORKLOAD	4:30
PLANNING	05-07-2023 e 06-07-2023, 10:00 - 12h15
TARGET GROUP/ REQUIREMENTS	All Técnico Lisboa Professors
PARTICIPANT LIMIT	40

LEARNING OUTCOMES

Cognitive psychology has contributed to our understanding of learning, but how can these strategies be implemented into teaching practices? So far, few instructors have been aware of these promising strategies. Therefore, in this training, participants will get a chance to familiarize themselves with some of the findings that have received robust support from decades of research. We will examine and discuss how strategies from cognitive psychology can be implemented in STEM education. Participants will learn more about the basic research about human memory and learning and how evidence-based strategies can be applied and implemented.

On completion of the training, participants should have acquired knowledge and/or skills to:

- Understand about the science of learning from a cognitive psychology perspective;
- Realize the purpose and value of quizzing in the learning process;
- Understand the concept of metacognition and how to improve students' metacognitive calibration;
- Accept how combining different memory systems can increase the efficiency and effectiveness of learning;
- Explore strategies for utilizing different memory systems to improve learning outcomes;
- Evaluate the effectiveness of different learning strategies and modify them to improve learning outcomes;
- Understand the fundamentals of working memory and its impact on cognitive load;
- Identify techniques to reduce cognitive load and improve working memory;
- Understand the psychological theories and concepts related to motivation and their application to the classroom context;
- Develop an understanding of how expectations, attitudes, and different types of motivations can influence motivation;
- Analyze the impact of internal and external factors on motivation.

PROGRAMMATIC CONTENT	WORKLOAD	TRAINERS
<p>The science of learning – How cognitive psychology can improve teaching and learning</p> <p>Quizzes, Retrieval practice and an introduction to metacognition</p> <p>Different memory systems and how combining different memory systems can improve learning</p> <p>Implementing learning strategies from cognitive psychology</p> <p>Working memory – how reduce cognitive load</p> <p>Using step-by-step instructions to motivate students</p> <p>Motivation – Expectations, attitudes, and different types of motivations</p>	4h30	<p>KTH Royal Institute of Technology</p> <p>Marcus Lithander, PhD</p> <p>Elizabeth Keller, Lecturer</p>

TRAINING METHODOLOGY	Exhibition, Interrogative and Active, using certain methods/dynamics, such as discussion, group work and practical cases.
TECHNICAL PEDAGOGICAL RESOURCES	Video Projector and Computer with Internet access.
SPACES AND EQUIPMENT	Training Room for 40 participants.