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Welcome

COMPutational Seniors E-Guide

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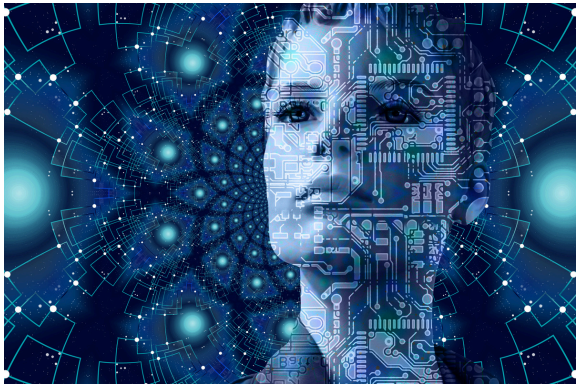
INTRODUCTION

Welcome to the COMPutational Seniors E-Guide, a training resource designed to support you, as an adult education professional, in bringing computational thinking into the planning, delivery, and assessment of your classes.

The E-Guide is designed to support adult trainers

Have you ever wondered how small changes in your teaching approach can lead to big differences in learner engagement? Or how everyday situations can become powerful learning tools? You are about to discover that computational thinking is not just about technology. It is about thinking smarter, teaching better, and learning with purpose!



Did you know that...?

Many of the problem-solving strategies used in today's digital world come from the same logical steps that people have used for centuries in daily life. Now, you will help your learners use them consciously and confidently.

Over recent decades, digital transformation has deeply reshaped the way we communicate, work, learn, and participate in society. But have you ever stopped to think about how different your daily life would be today without smartphones, online platforms, or instant communication?

The widespread adoption of digital technologies, the automation of processes, and the growing presence of artificial intelligence have opened the door to exciting new opportunities, but also to important challenges. How can we make sure that everyone feels confident in this fast-changing digital world? How do we promote inclusion, active participation, and lifelong learning for all?

In this context, adult education plays a strategic role in ensuring that no one is left behind by these changes. Traditionally, digital literacy has focused on learning how to use devices, applications, digital platforms, or online services. However, today this approach is no longer enough. It is not sufficient to know how to use technology.

Today, it is increasingly important not only to use technology, but to understand how it works and to engage with it in a logical, creative, and critical way. And this is exactly where computational thinking (CT) becomes your most powerful ally.

This is precisely where computational thinking (CT) emerges as a key competence for the twenty-first century, and not only for professionals in the technological field. In fact, it is for everyone.

Have you ever thought about how often you solve problems every day without even noticing? From planning your schedule to choosing the best option at the supermarket, you are already using the same thinking skills that lie at the heart of computational thinking.

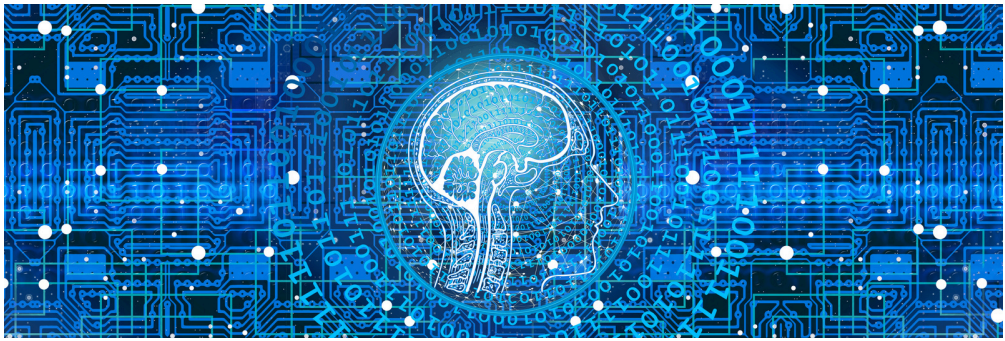
Computational thinking can be understood as a set of cognitive skills that help us approach problems in a structured and effective way. It involves breaking complex challenges into manageable parts, recognising patterns, focusing on what really matters, and designing step-by-step solutions. Sounds technical? Here is a fun fact: you use these skills every time you follow a recipe, organise a trip, or solve a practical issue at work — no coding required!

And this leads to an important shift in perspective. Contrary to common belief, computational thinking is not just about computer programming. These skills are transferable, practical, and deeply connected to everyday life.

In the field of adult education, computational thinking becomes a powerful opportunity to empower learners, strengthen their autonomy, and encourage a more active and critical relationship with technology. Imagine your learners feeling more confident when facing digital tools, more motivated to try new approaches, and more capable of making informed decisions.

Far from being a complex or inaccessible technical subject, computational thinking can be naturally woven into everyday educational activities. When adapted to learners' contexts, interests, and previous experiences, it becomes much more than a methodology: it becomes a tool for building confidence, motivation, and meaningful learning.

What could change in your classroom if your learners started to see themselves not just as technology users, but as confident problem-solvers in a digital world?



For this reason, this E-Guide provides you with practical guidance on how to bring computational thinking into the classroom.

This E-Guide is designed especially for professionals like you: trainers and educators in adult education who want to bring computational thinking into the organisation and delivery of their classes.

Inside this guide, you will find pedagogical, methodological, and practical support to help you integrate computational thinking in a way that is cross-cutting, accessible, and deeply connected to real-life situations. There are no complicated theories, no unnecessary jargon, just meaningful ideas you can use in your everyday teaching practice.

And how will you do this? Through a gradual and friendly approach based on everyday examples, collaborative activities, and real-life situations. By working from experience, you help demystify technology and turn learning into something familiar, empowering, and truly engaging.

Are you ready to see your classroom become a space where curiosity grows, confidence builds, and learning feels relevant again?

The aim is not to offer fixed recipes, but to inspire, guide, and support you so that you can adapt each proposal to your own context, your learners, and your unique teaching style. After all, who knows your classroom better than you? And who is better placed to turn ideas into meaningful learning experiences?

That is why we invite you to view this E-Guide not as a strict set of instructions, but as a companion on your professional journey as an adult educator. Think of it as a toolbox you can open whenever you need inspiration, a fresh perspective, or a new way to engage your learners.

Within these pages, you will discover ideas, viewpoints, and practical proposals designed to grow with you, adapting to your reality, supporting your creativity, and helping you integrate computational thinking into your classes in a way that feels natural, useful, and truly meaningful.

Structure of the E-Guide

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UNIT 1. Understanding Adult Learners

In this unit, you will explore the backgrounds, motivations, and digital confidence of your students to design truly inclusive computational thinking instruction. Older adults bring decades of rich life experience and problem-solving histories that you can use as a foundation for learning. You are encouraged to help them recognise CT as something they already perform in daily life, such as troubleshooting appliances or managing budgets. By using tools like learning scenarios and real-life experiences, you can validate their existing knowledge while addressing common barriers like digital anxiety or the fear of making mistakes.

UNIT 2. Setting Learning Objectives in CT

This unit helps you design and co-create learning objectives that are both empowering and attainable for your students. You will learn to categorise goals into personal growth, career advancement, or reskilling, ensuring they remain grounded in the learner's real-life needs. By involving your students in the co-creation process, you can increase their commitment and reduce anxiety. Ultimately, you will translate technical concepts into meaningful SMART objectives that help learners navigate their digital and professional lives with independence.

UNIT 3. Relevant Topic Selection

Selecting meaningful topics is essential because you act as a bridge between a learner's previous experience and new technical skills. You are encouraged to start from the learner's reality by using familiar situations, such as organising daily tasks or making household decisions, to introduce CT principles like decomposition and sequencing. This approach transforms your role from a content deliverer into a designer of learning experiences. By choosing relevant and practical content, you help increase motivation and reduce resistance to technological subjects.

UNIT 4. Materials and Resources Preparation

In this unit, you will learn how carefully prepared pedagogical tools can facilitate the development of CT skills. You will discover that CT can be taught using "unplugged" activities that require no digital devices, such as sequencing a routine or designing decision trees. The unit also covers tinkering, making, and remixing activities, as well as visual programming tools like Scratch. Your goal is to select or create resources that are accessible, easily editable, and innovative to meet the diverse needs of adult learners.

UNIT 5. Designing Learning Scenarios

This unit provides a framework for creating learning scenarios where your learners become active participants who must make their own decisions. You will design task-centred scenarios that start from existing knowledge and progress through demonstration, guided practice, and metacognitive reflection. The focus is not just on finding the "correct" answer, but on learning from mistakes in a realistic context. These scenarios help learners transfer knowledge to real professional problems or project management situations.

UNIT 6. Training Implementation: Flexibility and Accessibility

In this unit, you will find a practical framework for delivering training that is structurally flexible and cognitively accessible for low-qualified adults. The unit introduces the "Modular Format," which breaks 60-minute sessions into 15-minute "micro-modules" to ensure learning continuity even if a session is missed. You are encouraged to use plain language and multi-channel delivery (combining online, offline, audio, and visual paths) to remove the "digital wall". This approach creates a "safety net" that reduces learning anxiety and prevents dropouts.

UNIT 7. Creating an Inclusive Learning Environment

The goal of this unit is to empower you to cultivate a psychologically safe and socially supportive environment. You will shift your role from a lecturer to a facilitator who creates a safe environment in which mistakes are treated as valuable learning opportunities. A central practice is establishing a "Classroom Learning Agreement" to ensure mutual respect and open communication. By prioritising emotional well-being and plain language, you remove exclusion barriers and help learners see CT as a tool they are entitled to use.

UNIT 8. Adapting to Different Learning Styles

This unit helps you adapt content to visual, auditory, kinaesthetic, and written styles by transforming material into multiple formats. You will learn to use AI tools to quickly generate slides, infographics, and synthetic speech to reduce your own technical effort. By applying CT principles such as abstraction, you can focus on core messages while converting content across formats. This flexibility allows you to reduce the cognitive load on your students and respond to learners' immediate engagement signals.

UNIT 9. Assessment and Self-Evaluation Tools

In this final unit, you will explore practical assessment tools that help both you and your learners measure progress in CT. It identifies four essential types: diagnostic (baseline), formative (ongoing), performance-based (demonstration), and summative (outcomes).

You will also compare digital platforms such as Magic School AI, Socrative, Moodle, and Google Forms for creating evaluation tasks. Effective assessment in this context is intended to be supportive and transparent, fostering continuous improvement rather than passive judgement.

Shall we start?