

UNIT 5: Designing Learning Scenarios



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1. Aim and Objectives

The aim of this unit is to support you in designing meaningful and effective learning scenarios that bring computational thinking (CT) to life in adult education.

O B J E C T I V E S

By the end of this unit, adult trainers will be able to:

- Design meaningful and realistic learning scenarios that bring computational thinking into adult education practice.
- Connect abstract computational thinking principles with authentic everyday, professional and social situations.
- Create learner-centred activities that promote problem-solving, logical reasoning, creativity and reflection.
- Use scenario-based learning to develop transferable competences in adult learners.



2. Outcomes

Upon completion of this unit, adult trainers are able to:

- design learning scenarios based on real-life problems relevant to adult learners.
- integrate decomposition, pattern recognition, abstraction and algorithmic thinking into scenario-based activities.
- adapt learning scenarios to different learner profiles, needs, confidence levels and educational contexts.
- use learning scenarios to support learners' critical thinking, decision-making, confidence and practical problem-solving.



3. Main CT Principles Applied

All four CT principles are applied in this unit:

- | | |
|-----------------------|------------------------|
| • Decomposition | • Abstraction |
| • Pattern Recognition | • Algorithmic thinking |

4. Link to WP2 Modules

This unit is directly linked to M3, "Integrating Computational Thinking in Adult Education", specifically U3, "Designing Lesson Plans and Activities". This unit provides adult trainers with step-by-step guidance on defining learning objectives, designing CT-based activities, incorporating real-life situations, scaffolding learning and assessing results. It also includes a practical one-hour lesson example that can be used as a reference for designing CT-based learning scenarios.



5. Challenges

When you begin designing learning scenarios that integrate computational thinking, you may quickly realise that this involves much more than simply planning activities. Have you ever felt that a well-prepared activity didn't quite work as expected? Designing effective scenarios requires reflection, adaptation, and a learner-centred mindset.

- One challenge you may face is creating scenarios that feel authentic to adult learners. Adults bring rich professional and personal experiences and quickly notice when a situation feels artificial. A practical solution is to start from their real contexts –by listening to their experiences, asking questions, and adapting scenarios to reflect their motivations and challenges.
- Another challenge is transforming abstract ideas into meaningful learning experiences. Concepts like problem decomposition or logical reasoning can feel distant unless they are grounded in reality. A helpful strategy is to embed these concepts in familiar, everyday situations, allowing theory to emerge naturally through practice.
- You may also struggle with managing complexity. Scenarios should be challenging enough to promote deep thinking, but not so complex that learners feel overwhelmed. A good solution is to introduce complexity gradually, limiting information and choices at first and expanding them as learners gain confidence.

“The most powerful learning experiences are not perfect from the beginning; they evolve through listening, reflection, and refinement.”



6. Justification

Learning scenarios should be as realistic as possible. Scenario-based learning immerses learners in meaningful contexts through simulations or structured situations that reflect real challenges.

Learning scenarios should apply a learning-by-doing approach and foster learner motivation.

Learner-centred: scenarios should allow learners to apply the skills they are developing while at the same time strengthening their weaker areas.



7. Learning Scenarios

A learning scenario is a structured framework that guides learners towards achieving competency-based objectives. In adult education, a learning scenario always starts from a real-life problem and guides learners through a clear thinking process, using computational thinking as a support tool.

In short, a learning scenario is a bridge between knowledge and competence: a space where learners can experiment, make mistakes and grow, while you, as a trainer, guide and support the learning process.

Would you like to learn more about learning scenarios?

LEARN MORE





7.1 Types of Learning Scenarios

Different types of learning scenarios can be used to support computational thinking, depending on the learning objectives, the learners' profiles, and the level of complexity required. Here are some common types of learning scenarios and their purposes in education.

- **Gamified scenarios:** Use game mechanics and dynamics to increase motivation and engagement.
- **Decision-making scenarios:** Present a dilemma in which each choice leads to different outcomes. They are particularly suitable for training leaders and managers.
- **Narrative scenarios:** Incorporate stories that capture learners' attention and create an emotional connection with the content.
- **Simulations:** Useful for developing practical skills in areas



Combining different types of scenarios can create rich learning experiences that support CT through exploration, experimentation, and reflection.



7.2 Benefits of Scenario-Based Learning

- Learning is situated in realistic contexts: This makes it easier for learners to transfer knowledge and skills to professional and real-life situations.
- Scenarios build on learners' existing knowledge and experience: They help connect new learning to what learners already know and do, supporting deeper understanding.
- Scenario-based learning addresses more than content knowledge: It also develops skills, attitudes, and decision-making abilities in authentic contexts.
- Working on realistic problems increases engagement: When learners see a clear, recognisable purpose, motivation and participation naturally rise.
- Concepts and models are learned through practical application rather than in isolation: Applying ideas in context leads to deeper understanding and longer-lasting learning.

When learning happens in real-life contexts, the brain makes stronger connections between knowledge and action, making it much easier for learners to apply what they've learned outside the classroom.



The learning scenarios are not lesson plans.

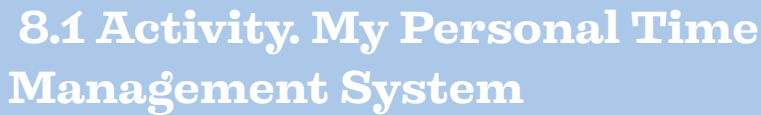
A learning situation does not focus on curricular objectives, nor is it a teaching unit.

It is driven by teaching and learning objectives and should prompt reflection on the capabilities and competencies the situation is intended to develop.



7.3 Ideas for Examples of Learning Scenarios

- **Solving a real professional problem:** Learners analyse a common problem from their work context (customer conflict, process failure, low productivity) and propose well-justified solutions.
- **Designing a product or service:** Participants design a resource, protocol, programme, or service that responds to a specific need in their professional environment.
- **Decision-making in a complex scenario:** Learners are presented with a case involving incomplete or evolving information that requires prioritisation, negotiation, and evidence-based decision-making.
- **Simulation of a professional situation:** Role-play or simulations (meetings, interviews, interventions, negotiations) in which both technical and communication skills are applied.
- **Analysis and improvement of an existing practice:** Learners review a real practice (their own or their organisation's), identify areas for improvement, and propose feasible changes.
- **Managing a short project:** Participants plan, implement, and evaluate a limited-scope project while assuming different roles and responsibilities.



"I never have enough time... and I don't know where to start."

The key competence to develop:

The mission is clear:

To help them analyse, structure and improve the way they use their time by applying the four principles of computational thinking.





8.2 Activity. My Personal Time Management System with CT

PHASE 1 – Decomposition

Big problems feel overwhelming. So let's break them down. Ask each learner to reflect individually: What blocks make up my day? Work or training, commuting, housework, leisure. Suddenly, the chaos becomes visible.

Result: My personal time map.

PHASE 2 – Pattern Recognition

Now it's time to look for regularities: What activities appear again and again? When do I have more energy? When do I feel exhausted? Powerful questions to spark insight: Where do I lose the most time? What habits sabotage my organisation?

Result: My personal patterns.

PHASE 3 – Abstraction

From all this information, we extract what is essential. Learners formulate simple rules: "If I'm tired, I don't perform well." "If I don't write things down, I forget them." Then distil everything into 3–4 key criteria, such as: energy, priorities, real available time.

Result: My decision-making compass.

PHASE 4 – Algorithmic thinking

Now they design their own "life algorithm": a clear, repeatable sequence, for example: List all fixed commitments. Calculate real free time. Choose 2–3 priorities. It can be a list, a diagram, or step cards. The important thing is that it is their system.

Result: My personal weekly algorithm.

You are observing their thinking: Can they analyse their time and recognise real patterns? There is no single correct model. Every life is different. What truly matters is learning how to think. Ask yourself as an adult trainer: Where else in my classroom could this same process help my adult learners? Decision-making? Problem-solving? Study planning?



8.3 Activity. How to Overcome Challenges?

Imagine you are preparing a new module for your adult learners in CVET. Your objective is not only that they complete a task, but that they learn to think logically and approach problems systematically. You decide to design a learning scenario based on a real professional situation: for example, managing a technical service request, organising a small project, or solving a production problem.

You know the content, tools and learning outcomes. However, designing the scenario raises questions. Ask yourself:

- What is a real problem your adult learners would face in a workplace?
- How can you break this complex situation into smaller, meaningful steps that reflect computational thinking (analysis, decomposition, sequencing, decision-making)?
- Which parts of the process are essential for learning, and which are only contextual?



8.4 Activity. The Job Interview

Here's an exciting opportunity to design a learning scenario that transforms a real-world experience into a structured problem-solving activity. Your learners will see how computational thinking skills can make them more confident and effective in a job interview.

In this activity, learners prepare for a job interview by applying CT principles, especially focusing on communication, problem-solving, and decision-making skills.

- Divide the preparation into clear steps: research the company; identify the key skills required; prepare answers to common questions; and practise responses.



9. Additional Resources





10. What is the value of this unit?

The value of this unit lies in:

The ability to transform learning objectives into structured, realistic, and meaningful learning experiences. Designing a learning scenario involves more than planning a series of activities.



Well-designed scenarios allow learners to explore different solutions, learn from mistakes in a supportive environment, and gradually develop confidence in applying new skills.

End of the Unit