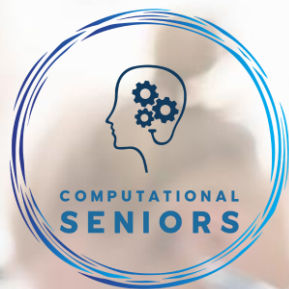




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MODULE 4

Teaching strategies. How can we use programming to improve 21st century soft Skills



WELCOME TO MODULE 4

In this module, we will explore how Computational Thinking can be used as a strategy to foster the development of soft skills among low-qualified adults. In a fast-changing, digitally driven world, these interpersonal and cognitive skills, such as adaptability, problem-solving, communication and collaboration, are increasingly essential for personal growth and employability.

Through CT-based activities and pedagogical approaches, we will examine how trainers can support learners in strengthening these competencies in meaningful, structured ways. The module also introduces accessible methods to assess the development of soft skills within CT-based learning environments.

Use this module to support the development and assessment of essential soft skills through Computational Thinking frameworks tailored for low-qualified adults



STRUCTURE OF THE MODULE

Unit 1. Soft Skills. 21st Century interpersonal competencies

- What are they and why are they crucial for adult learners
- How CT can be used to improve soft skills
- Challenges in teaching CT to low skill adults and real-world application

Unit 2. Strategies to develop Soft Skills through Computational Thinking

- Using CT to strengthen soft skills in low-skill adult students
- Adapting CT strategies for different learning levels
- Lesson examples and best practices
- Online and offline tools for CT learning

Unit 3. Assessment of Soft Skills development in CT activities

- Assessing soft skills and its importance
- Observation, verbal feedback and other assessments methods
- Challenges when assessing soft skills development

Unit 4. Case studies and activities

- Real-world examples of CT
- Interactive exercises to explore and apply what you have learn in this unit

At the end of this course, you, as an educator, will be able to...

Learning outcomes

Explain how CT enhances 21st-century soft skills like critical thinking, adaptability, collaboration, creativity, and communication.

Apply CT-based teaching strategies to help low-skill adult learners develop problem-solving and structured thinking skills.

Design and adapt non-digital CT activities that encourage logical reasoning, teamwork, and resilience in adult education.

Assess soft skills in CT activities using observation and feedback (nontraditional methods)

Provide constructive feedback and practical guidance to help adult learners recognize and strengthen their skills through CT principles

MODULE AIM and OBJECTIVES

AIM: To explore how Computational Thinking strategies can support the development of 21st-century soft skills in low-skill adult learners through structured, real-life activities.

OBJECTIVES:

1. Understand the relationship between CT and key soft skills such as communication, adaptability and problem-solving.
2. Identify challenges and solutions when teaching CT for soft skill development in adult education.
3. Apply CT-based teaching strategies to assess and reinforce soft skills using practical, low-tech activities.



A woman with short brown hair and black-rimmed glasses is seated at a white table, focused on writing on a tablet with a white pen. She is wearing a light-colored cardigan over an orange top. In the background, a man in a white shirt is also seated at the table, looking down at his work. The setting appears to be a bright, modern classroom or library with bookshelves visible in the distance.

UNIT 1

*Soft Skills. 21st Century
interpersonal
competencies*

What are 21st century soft skills?

Soft skills are a combination of cognitive, social, and emotional competencies that enable individuals to work through dynamic, work effectively with others, and adapt to change. **Mastering these competencies is key for lifelong learning, employability, and personal development**, particularly for low-skill adult learners.

Key characteristics:

Transferable

Useful across all jobs, industries, and life situations

Critical in adult education

Adults with strong soft skills learn more effectively and retain knowledge longer

Essential for employability

85% of career success depends on soft skills, not technical skills

Support problem-solving in daily life

Help adults make informed decisions, communicate effectively and manage personal challenges in everyday situations



You can use CT to help low-skill adults build soft skills step by step, empowering them to overcome challenges and succeed in real-life situations.



Why are soft skills crucial for adult learners ?

Soft skills are essential for low-skill adult students as they equip them with the tools to handle everyday challenges, build confidence, and improve job readiness. These non-technical skills enable learners stay flexible in varying situations, solve problems logically and communicate effectively in both personal and professional contexts.



Improve daily decision-making by helping them manage household tasks, budgets, or challenges with better efficiency.



Foster personal growth by encouraging independence, resilience, and better interactions with others.



Improve job skills by helping learners gain confidence in interviews, teamwork, and managing responsibilities.

Originally linked to computer science, CT is now recognized as a key soft skill. It helps learners confront challenges step by step, identify patterns, and develop structured solutions. By integrating CT, students can become more confident problem-solvers, adapt to new situations and think creatively, all key skills for success in the 21st century.

Consider how you can integrate opportunities for learners to apply soft skills practically.



How CT aligns with 21st century soft skills

CT provides a structured framework for developing essential 21st century soft skills. By applying CT strategies, students strengthen cognitive flexibility, structured thinking, and adaptability, which are key to success in learning and work.

CT builds a logical framework for thinking



CT encourages logical reasoning and step-by-step problem-solving, which supports skills like critical thinking and decision-making.

CT encourages adaptability and growth



Applying CT principles like abstraction teaches students to adjust their approach, reinforcing resilience and flexibility.

CT enhances communication and collaboration



CT methods, such as algorithmic thinking and pattern recognition, help learners organize thoughts, articulate ideas clearly, and work effectively in teams.



CT naturally supports soft skills like structured thinking, adaptability, and teamwork. Incorporating CT into your training **helps low-skill adult learners** build confidence, improve problem-solving, and **develop skills for everyday life.**



Soft skills that can be improve with CT

The key 21st century soft skills that can be developed through CT, particularly for low-skill adult learners, are:



Critical thinking

Using decomposition and logical reasoning to analyze and solve problems.



Problem-solving

Applying CT strategies (pattern recognition, algorithms) to break down challenges.



Creativity and innovation

Using abstraction to think outside the box and develop unique solutions.



Adaptability and resilience

Learning through trial-and-error and adjusting strategies.



Collaboration and teamwork

Applying algorithmic thinking to streamline group tasks and roles.



Communication

Structuring thoughts clearly and logically using CT principles.

As trainers, **your role is to create opportunities where students can practice and apply these skills** in real-world scenarios. Teaching soft skills can empower your students to take steps toward lifelong success.

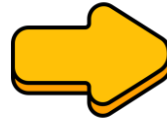
Challenges in teaching CT to low skill adults



Challenges

Difficulty relating CT to real life soft skills

Learners could not see how CT concepts connect to soft skills like critical thinking or collaboration.



Solutions

Use everyday examples that relate specifically to your students. Ask them about their daily life and show them how CT applies.

Low confidence in problem-solving and communication

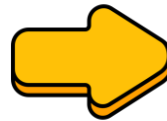
Many low-skill adults lack confidence in their ability to solve problems or express ideas clearly.



Use scaffolding techniques to build confidence gradually. Start with structured activities that offer clear guidance and gradually reduce support, allowing them to practice in a safe, low-pressure environment.

Resistance to new ways of thinking

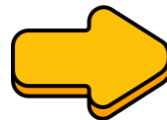
Adults with limited exposure to structured thinking may find CT concepts overwhelming.



Emphasize that CT is a way of thinking that improves problem-solving and teamwork and not something requiring technical skills or technology knowledge.

Collaboration barriers

Students may struggle with teamwork, having problems resolving conflicts or dividing tasks fairly.



Facilitate group tasks with clear roles and step-by-step instructions. Use small structured activities to build teamwork gradually and encourage open communication.

Real-world applications of CT in soft skills development

Improving daily time management

You can help students recognize patterns in their daily routines to avoid time wasting habits and focus on essential tasks by applying abstraction. With a daily schedule, adult students strengthen organization and adaptability, making it easier to manage responsibilities at home and work.



Building planning skills

You can support students in developing problem-solving and organization skills by guiding them through meal planning. Encourage them to break the process into steps, such as budgeting, grocery shopping, and meal preparation. Using decomposition can help them manage resources efficiently, adapt to unexpected changes, and improve critical thinking, planning, and adaptability in daily life.

Activity: Applying CT to everyday challenges

CT in everyday life

Objective: Help students recognize and apply CT strategies when solving real-world problems.

1. Choose a common daily challenge

- Managing household expenses.
- Organizing a personal or work schedule.
- Planning a grocery trip on a budget.

2. Guide learners through CT steps

- **D**: Break the challenge into smaller tasks.
- **PR**: Identify repeating situations or problems.
- **AB**: Focus only on what's necessary to solve the problem.
- **AL**: Develop a simple, structured approach to address it.

3. Reflect and discuss

- How did CT simplify the challenge?
- What soft skills did they practice?
- How can they apply this approach in other areas of life?
- Which part of the process was the most challenging?

D: Decomposition
PR: Pattern
recognition

AB: Abstraction
AL: Algorithm

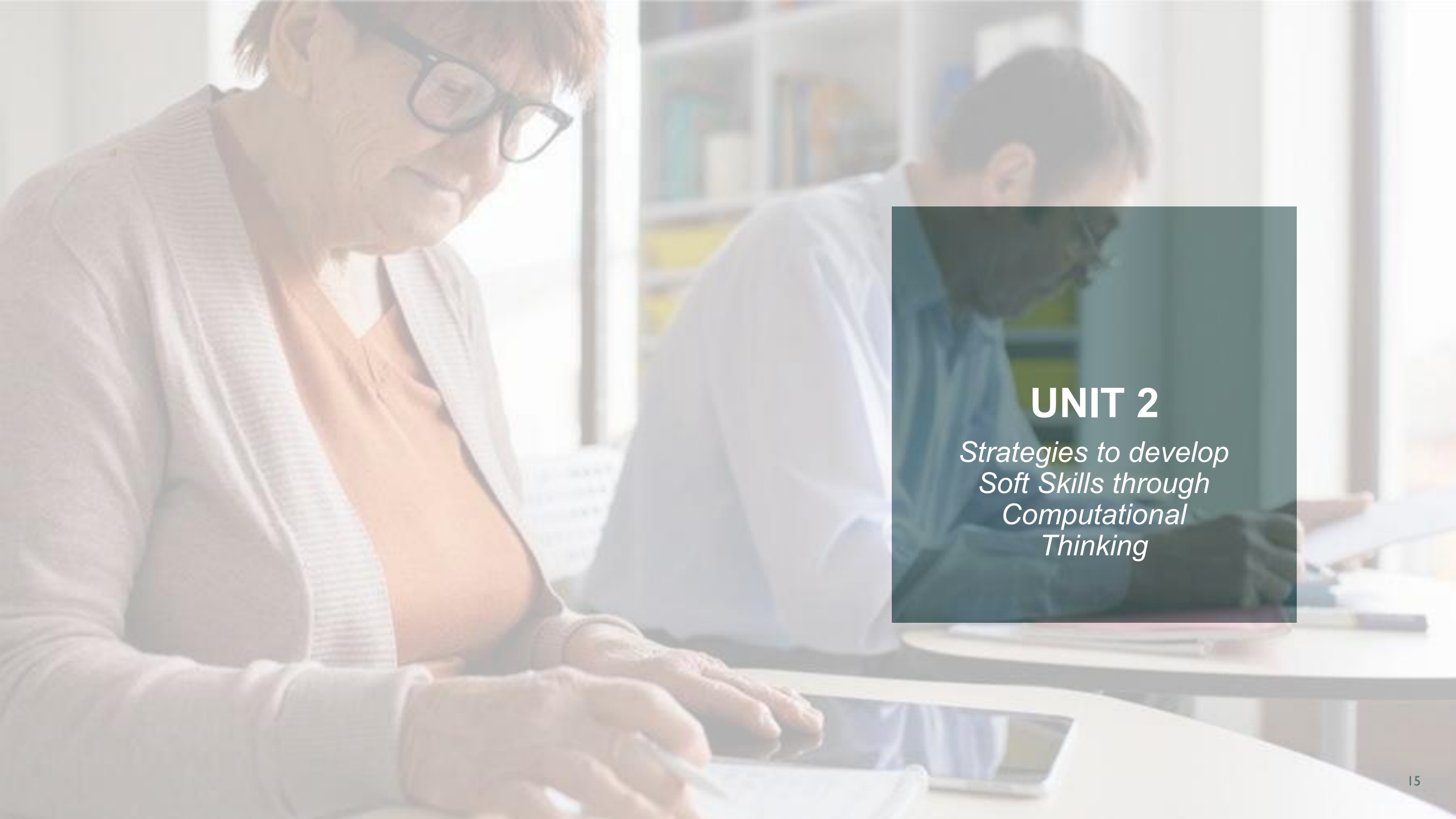
Activity: Applying CT to everyday challenges

Tips for introducing CT to students

- ✓ Start with familiar, real-life examples before introducing concepts.
- ✓ Use simple language and avoid technical terms to keep CT accessible.
- ✓ Encourage students to talk through their thought process to reinforce structured thinking.
- ✓ Reinforce that CT is about thinking, not technology, and can be applied to everyday situations.



Everyday tasks are the perfect way to introduce CT to low-skill adult learners. Keep activities simple, relatable, and focused on **step-by-step thinking** to help students gain confidence in their soft skills abilities.



UNIT 2

*Strategies to develop
Soft Skills through
Computational
Thinking*

Using CT to strengthen soft skills in low-skill adult students

In this unit, we will focus on practical ways to develop soft skills in low-skill adult students using CT. You will explore structured, step-by-step approaches that will encourage your students to think critically, solve problems effectively, and work in collaboration, all without the need of technology.

CT can help you create engaging learning experiences where adult students can apply structured thinking to everyday challenges. By guiding your students through clear, logical processes, you can help them build confidence, adaptability, and communication skills that are key for lifelong learning and employability.

Throughout this unit, you will be introduced to specific CT strategies that reinforce each soft skill, along with adaptable teaching methods to make CT accessible for different learning levels.

By the end, you will have practical techniques to integrate CT into your lessons in a way that is relevant, engaging and easy to implement.





Developing critical thinking with CT

Critical thinking is the ability to analyze situations, evaluate information, and make logical decisions.

Many low-skill adult learners struggle with problem-solving because they rely on intuition rather than structured thinking.

CT helps learners develop a logical and systematic approach to evaluating situations, reducing guesswork and improving decision-making.

Example: When planning a weekly grocery trip on a tight budget, learners can use CT to break down their expenses, focus on essential items, compare prices, and decide what fits within their budget. This helps them make educated purchasing decisions instead of buying impulsively and running out of money before their next paycheck.

Critical thinking is best developed through open discussions and problem-solving exercises.
Encourage students to ask "why" and "how" questions about everyday situations to help them form independent judgments.



HOW YOU CAN APPLY CT

Decomposition

Break down arguments or information into parts to analyze them separately.

Pattern recognition

Identify logical connections, inconsistencies, or biases in reasoning.

Abstraction

Focus on relevant details while filtering out unnecessary information in decision-making.

Algorithms

Teach students to create structured reasoning to compare options and get to well-thought conclusions





Developing problem-solving skills with CT

Problem-solving allows students to confront challenges logically and systematically, rather than reacting impulsively. Many low-skill adult learners may struggle with problem-solving because they feel overwhelmed by complicated issues or are used to making quick decisions without a well-thought approach.

CT provides a step-by-step framework that helps them break down challenges, analyze options, and develop practical solutions, making problems more manageable and less stressful.

Example: A student struggling to prepare healthy meals with limited ingredients can apply CT to break down the problem, identify common food combinations that work, and plan meals using what they have instead of focusing on what's missing. By structuring their approach and recognizing patterns in meal preparation, they can create nutritious meals while minimizing food waste.

Encourage students to **approach every challenge with a structured mindset**, reinforcing that most problems can be solved when broken down into steps rather than avoided.



HOW YOU CAN APPLY CT

Decomposition

Divide a challenge into smaller steps to identify key areas needing solutions.

Pattern recognition

Recognize previous mistakes or problems to prevent them from happening again.

Abstraction

Filter out distractions and focus only on the specific aspects of the problem that impact the solution.

Algorithms

Teach them to create a sequence of actions to solve a problem.





Developing creativity and innovation with CT

Creativity is about finding new solutions, thinking flexibly and approaching challenges differently, while innovation involves applying those creative ideas in practical ways. Many low-skill adult learners may struggle with these skills because they tend to rely on familiar approaches or may hesitate to try out alternative methods.

CT helps develop creativity and innovation by encouraging structured experimentation, recognizing useful patterns and refining ideas into workable solutions.

Example: A student trying to organize space in a small home can apply CT by breaking the task into categories like essential vs non-essential items, recognizing patterns in cluttered areas, and exploring multiple innovative storage solutions to maximize space.

Encourage students to **explore multiple solutions to a problem** instead of settling for the first idea that comes to mind. Emphasize that CT allows for creative problem-solving beyond traditional methods.



HOW YOU CAN APPLY CT

Decomposition

Break down a creative process into individual steps, such as brainstorming, refining and testing ideas.

Pattern recognition

Identify connections between unrelated ideas to inspire innovative solutions.

Abstraction

Remove rigid thinking to allow for unconventional ideas.

Algorithms

Develop structured steps to test and refine innovative ideas systematically.





Developing adaptability and resilience with CT

Adaptability and resilience are essential for responding change and tackling difficulties.

Many low-skill adult students struggle with shifting to different conditions because they rely on fixed routines.

CT helps by teaching them how to adjust strategies based on feedback and new information, rather than feeling discouraged when things don't go as planned.

Example: When facing last-minute changes to a work shift or family schedule, students can apply CT by breaking down their commitments, recognizing flexible options, and adjusting their plans without feeling stressed. If they practicing small adjustments over time, they build resilience and confidence in handling unexpected challenges.

Reinforce the idea that mistakes are not failures but opportunities for learning. Encourage students to **confront challenges with a problem-solving mindset** rather than frustration.



HOW YOU CAN APPLY CT

Decomposition

Analyze setbacks by identifying which specific factors need adjustment.

Pattern recognition

Recognize past successful strategies to adapt to new challenges.

Abstraction

Focus on core objectives while remaining flexible with the approach.

Algorithms

Apply iteration, testing different approaches, adjusting based on feedback to improve over time.





Developing collaboration and teamwork with CT

Collaboration involves working with others to achieve a common goal, while teamwork requires coordinating efforts, adapting to different roles, and solving problems together. Many low-skill adult learners may struggle with teamwork due to unclear roles, difficulty organizing tasks, or lack of confidence in group settings.

CT helps by providing a well-thought approach to teamwork, ensuring tasks are broken down logically, roles are well-defined, and decisions are made efficiently.

Example: When planning a community cleanup, students can use CT to break down tasks such as organizing supplies, assigning roles, and setting a timeline. If students structure responsibilities and adjust based on group strengths, they promote a more productive and cooperative effort, improving both teamwork and problem-solving skills.

Encourage structured teamwork by assigning roles and having students rotate responsibilities in group activities. This helps them see the value of organization and collaboration in real-life tasks.



HOW YOU CAN APPLY CT

Decomposition

Help students break large projects into manageable assignments so no one feels overwhelmed.

Pattern recognition

Identify strengths and past experiences to assign roles effectively.

Abstraction

Focus on shared goals while adapting individual approaches to fit the team.

Algorithms

Teach students to structure tasks so everyone in a group has a clear role and steps to follow.





Developing communication skills with CT

Communication is the ability to express ideas clearly, understand others and adapt messages to different situations. It involves active listening and confidence in delivering information. Many low-skill adult learners may struggle with communication due to difficulty organizing thoughts or using unclear explanations.

CT helps by encouraging structured thinking and focusing on key information, allowing students to communicate more effectively in conversations and daily interactions.

Example: A student preparing to request a schedule change at work can use CT by breaking down their key points, recognizing the best way to present their request, and structuring their explanation logically. Students can communicate more clearly when focusing on relevant details and organizing their thoughts.

Encourage students to **pause and structure their thoughts before speaking**. Teach them to organize information logically, just like they would when solving a problem step by step.



Critical thinking



Problem-solving



Creativity and innovation



Adaptability and resilience



Collaboration and teamwork



Communication

HOW YOU CAN APPLY CT

Decomposition

Break down thoughts into key points before expressing them.

Pattern recognition

Identify effective communication styles based on past interactions.

Abstraction

Guide students in focusing on the most important details when explaining ideas or writing messages

Algorithms

Help students structure conversations logically, ensuring that their message is easy to understand.



Adapting CT strategies for different learning levels

As a trainer, **you must adapt CT-based lessons to fit the abilities of your students**. Low-skill adults may need simplified explanations, more structured guidance, and step-by-step activities, while more experienced students can handle independent problem-solving and critical thinking exercises. Adapting the strategy allows that **all students can engage with CT** in a way that is practical and relevant to their daily lives.



For students with limited experience:

- Start with guided, hands-on exercises using familiar situations. Instead of explaining decomposition in abstract terms, have students apply it by breaking down a household chore, like preparing a meal into individual steps.
- Use visual aids, real-world examples, and group discussions to reinforce concepts before expecting students to apply them independently.
- Provide clear instructions and examples, demonstrating how to approach problems before students try on their own.

For students with more experience:

- Introduce open-ended tasks that require analysis and decision-making. For example, instead of giving them a structured budget plan, ask them to develop their own by prioritizing expenses and recognizing spending patterns.
- Encourage peer collaboration by having them work together on challenges, such as organizing an event, where they must assign roles, structure tasks and adjust plans when problems arise.
- Allow students to test different solutions, reflect on outcomes, and make improvements, reinforcing adaptability.

Regardless of skill level:

- Keep lessons interactive and **focused on real-world applications** to help students see the value of CT.
- Provide multiple entry points into a problem, offering gradual support and **adjusting complexity based on progress**.
- **Ensure all students develop confidence** in problem-solving, adaptability and structured thinking at a pace that works for them.

Lesson example: Solving everyday problems with CT

Activity objective: Help students apply CT strategies to solve a daily challenges while reinforcing soft skills.

Scenario: Students needs to manage a household budget on a tight income.



STEP 1: Identify the challenge

Students need to reflect on common budgeting challenges and discuss what makes managing money difficult. You can prompt them with questions like: What are your biggest financial struggles? What expenses often surprise you?

STEP 2: Apply CT strategies

Students break down the budgeting process using CT principles. Example, use decomposition to list expenses and separate essentials from nonessentials and use pattern recognition to identify spending habits and recurring costs.

STEP 3: Practical application

Students create a weekly budget plan using a set income. In groups, they categorize expenses, compare costs, and adjust for surprise costs introduced by you. They practice adapting their budget when faced with challenges like a medical bill.

STEP 4: Reflect and discuss

Students discuss how CT helped them approach budgeting differently. You can ask:

- How did breaking the problem into steps help?
- How can this approach help in other areas of life?

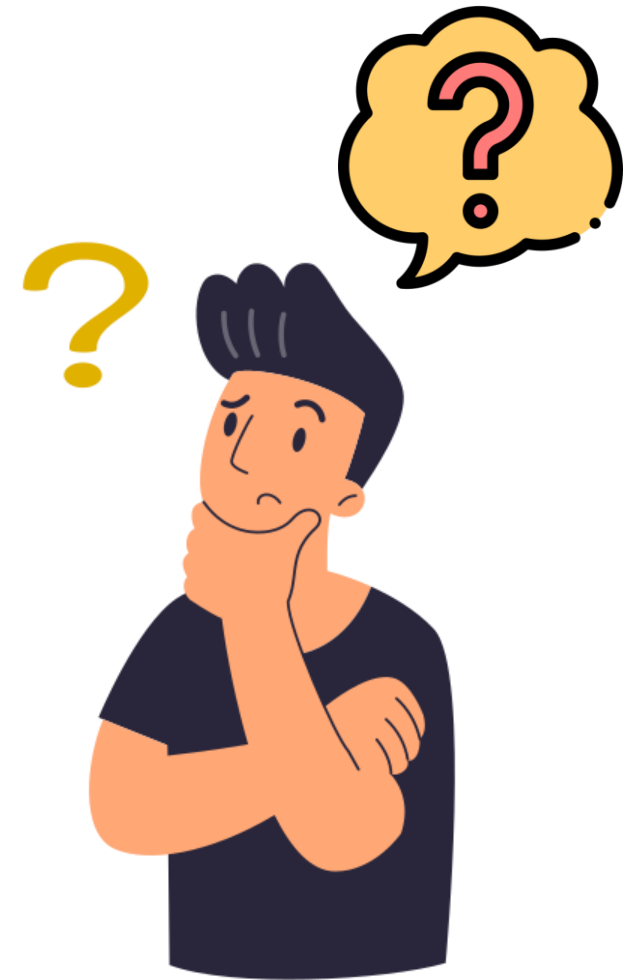


Budgeting is a problem many adults face daily. Applying CT principles help students **gain practical soft skills they can use beyond the classroom**, making financial decisions less stressful and more manageable.

Best practices

As a trainer, your role is to craft an interactive and structured developmental experience where students can apply CT principles to develop essential soft skills. Keeping lessons practical and adaptable secures that all students, regardless of skill level, can benefit from structured thinking, problem-solving and collaboration.

- **Make lessons relevant to daily life:** Use relatable examples and everyday scenarios to help students see the value of CT in managing real-world challenges.
- **Encourage trial and error:** Reinforce the idea that mistakes are part of learning. Guide students to analyse what went wrong, adjust their approach and try again.
- **Adjust activities based on student engagement:** Monitor participation and modify the complexity of tasks as needed. Gradually reduce guidance as students build confidence.
- **Use structured discussions:** Facilitate conversations where students explain their reasoning, recognize patterns, and explore different approaches.
- **Support independent thinking:** Start with guided exercises, then encourage students to take ownership of problem-solving tasks, making decisions with less direct instruction.

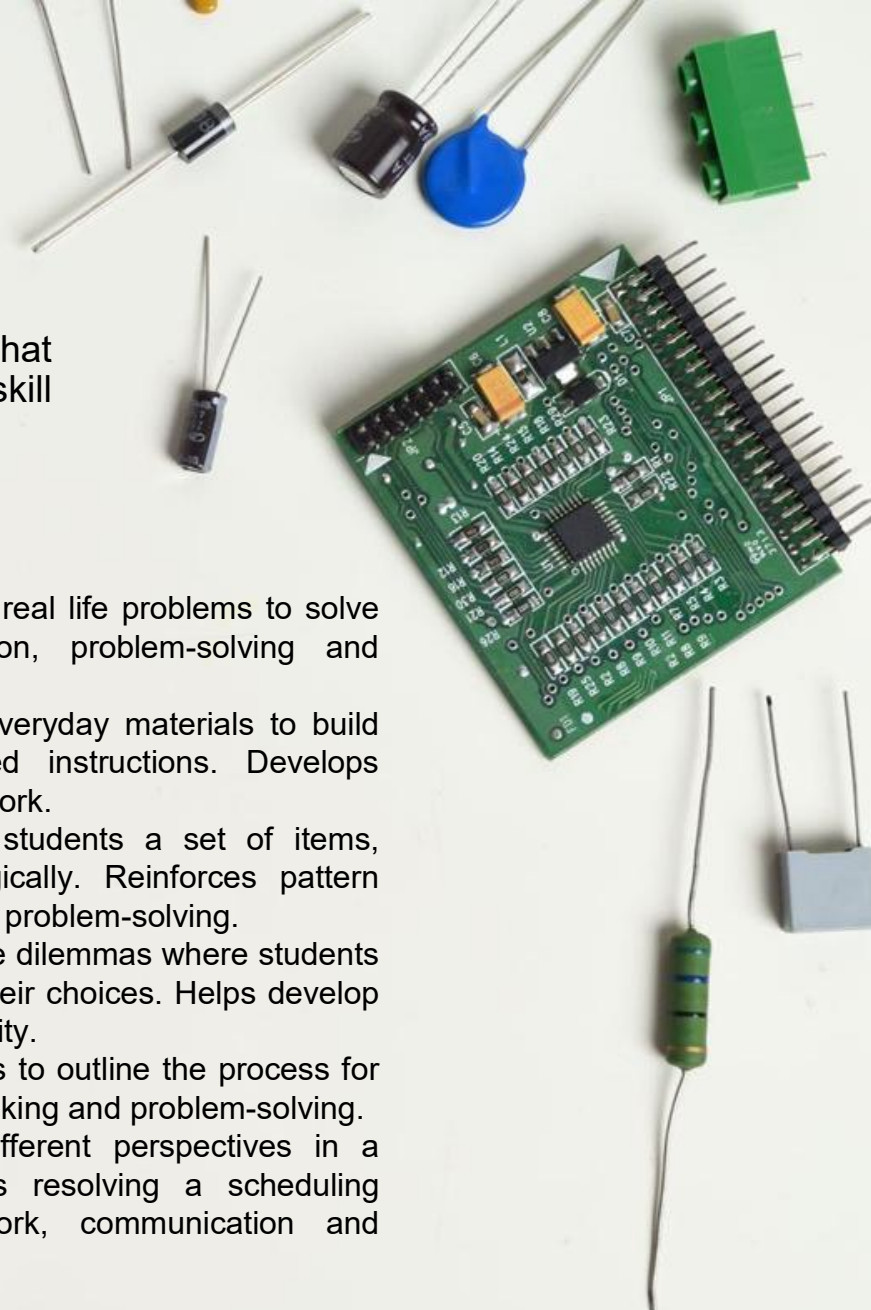


Offline tools and activities for CT learning

As a trainer, you can encourage teamwork and structured thinking using offline tools that promote problem-solving, communication and logical sequencing. These methods help low-skill adult learners engage in CT based learning without relying on technology.

Here are a few tools and activities you can use for structure collaboration:

1. **Task boards:** Use a whiteboard, paper or sticky notes to visually organize group tasks. Helps students break down problems, assign roles and track progress.
2. **Discussion templates:** Provide structured worksheets with guided questions. Encourages students to analyze problems, identify patterns and brainstorm solutions together.
3. **Role-based group activities:** Assign specific roles. Ensures teamwork by giving each student a clear responsibility.
4. **Physical cards:** Use cards with different tasks or ideas that students must organize into logical sequences. Reinforces sequencing, categorization and problem breakdown.
5. **Flowcharts and diagrams:** Provide pre-made templates for students to map out processes. Helps visualize structured teamwork and problem-solving steps.
6. **Collaborative storytelling:** Have groups create a real-world scenario step by step. Encourages logical reasoning, structured thinking and communication.
7. **Team challenges:** Give students real life problems to solve in teams. Improves collaboration, problem-solving and adaptability.
8. **Building tasks:** Use blocks or everyday materials to build something following team-created instructions. Develops sequencing, algorithms and teamwork.
9. **Categorization activities:** Give students a set of items, ideas or concepts to group logically. Reinforces pattern recognition and decision-making in problem-solving.
10. **Decision-making:** Present real-life dilemmas where students must weigh options and explain their choices. Helps develop structured reasoning and adaptability.
11. **Planning exercises:** Ask students to outline the process for achieving. Improves structured thinking and problem-solving.
12. **Negotiation:** Assign students different perspectives in a problem, for example coworkers resolving a scheduling conflict. Helps practice teamwork, communication and problem-solving.

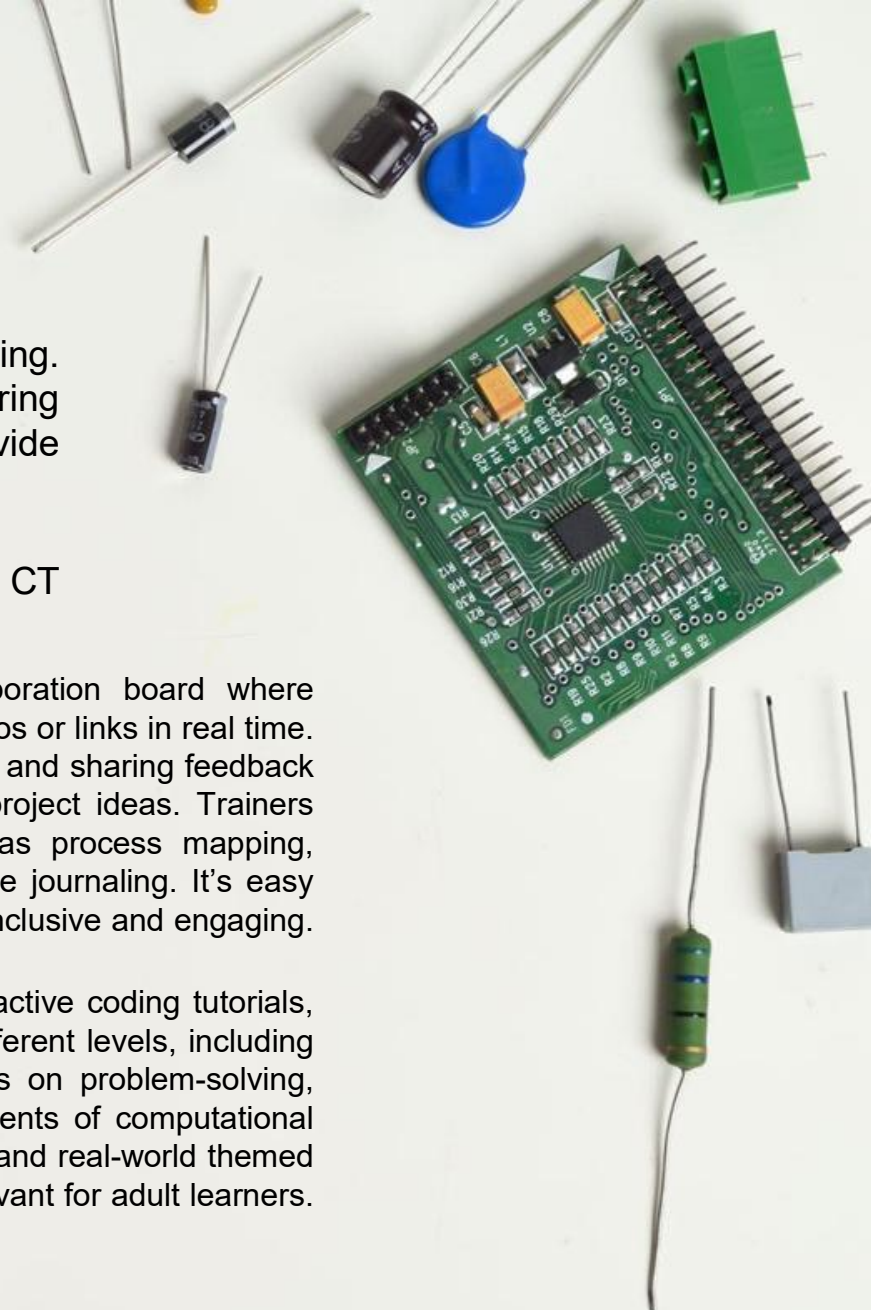


Online tools for CT learning

As a trainer, you can improve soft skills using online tools that support interactive learning. These platforms can be particularly effective for engaging low-skilled adult learners by offering a visual and adaptable learning experience. Online environments also help trainers provide flexible access to content and track learner progress more efficiently.

Here are a few tools and platforms you can use to support collaborative and structured CT learning:

1. **Kahoot!:** Kahoot! is an online application where you can create game-show-like quizzes. Students can use their smartphones, tablets, laptops, or classroom desktop computers as buzzers. It's a great tool for a fun, interactive assessment. It's free to use and many trainers use it as a syllabus review tool on the first day or to review content before an exam. [Link](#)
2. **Scratch:** Scratch is a free, beginner-friendly programming platform that uses visual blocks to create interactive stories, animations, and games. It's ideal for introducing computational thinking concepts like sequencing, loops, and conditionals without needing prior coding experience. Learners can collaborate, share projects, and develop logical reasoning while being creative. Particularly useful for low-skilled adult learners due to its simplicity and engaging format. [Link](#)
3. **Padlet:** Padlet is a digital collaboration board where learners can post text, images, videos or links in real time. It allows for brainstorming, planning and sharing feedback on problem-solving processes or project ideas. Trainers can structure CT activities such as process mapping, algorithm flow planning, or reflective journaling. It's easy to use and highly visual, making it inclusive and engaging. [Link](#)
4. **Code.org:** Code.org provides interactive coding tutorials, lessons, and projects tailored to different levels, including absolute beginners. Activities focus on problem-solving, logic and algorithms, all core elements of computational thinking. Its visual-based approach and real-world themed lessons make it accessible and relevant for adult learners. [Link](#)



Are you following along? Try this quick question to reinforce what you've learned



Which soft skill can be strengthened when adult learners use CT to organize tasks and define group roles in a community project?

- A) Independence
- B) Creativity
- C) Teamwork and collaboration
- D) Financial planning

The background image shows two individuals in a bright, modern study or library environment. In the foreground, an older woman with short brown hair and black-rimmed glasses is seated at a white table, looking down at a tablet device. She is wearing a light-colored cardigan over an orange top. In the background, slightly out of focus, is a man with dark hair wearing a white shirt, also seated at a table and looking down. Bookshelves filled with books are visible in the background, and the overall atmosphere is one of quiet study and learning.

UNIT 3

*Assessment of Soft
Skills development in
CT activities*

Assessing soft skills

Soft skills develop over time, making assessment essential for tracking progress. As a trainer, you need to observe how learners apply CT in real-world situations to adjust teaching strategies and support skill development.

This unit introduces practical, low-tech methods for assessing low-skill adult learners, including observation, self-assessment and peer feedback. You will also explore rubrics and checklists to measure progress without formal testing.

Unlike technical skills, soft skills have no clear right or wrong answers. Assessment should focus on progress, helping students recognize their growth and improve their soft skills.



Assessing soft skills is not about pass or fail, it's about **growth and progress**. Focus on how students apply CT in real-life situations and **use assessment as a tool** to guide and encourage improvement



Why assessment matters

Soft skills like problem-solving and adaptability take time to develop. Without assessment, students may struggle to recognize their progress, and you may miss opportunities to provide support. Structured evaluation secures that students actively apply CT principles in their daily lives and can help you **adjust your teaching strategies for bigger impact.**

Soft skills grow through practice and experience. Assessment should focus on progress over time, helping students see their improvement rather than just measuring performance.



What should be
assess?

- Problem-solving:** Can students break down challenges and apply structured approaches to find solutions?
- Critical thinking:** Do they analyze situations logically and evaluate different options?
- Adaptability and resilience:** Are they able to adjust their approach based on new information or challenges?
- Creativity and innovation:** Do they use CT to generate new ideas and explore alternative solutions?
- Collaboration and teamwork:** Are they effectively working with others and organizing group tasks?
- Communication:** Can they clearly explain their reasoning and structure their thoughts logically?

Observation based assessment

Observing students in different problem-solving situations is one of the most effective ways to assess soft skills. Low-skill adults may struggle with traditional assessments like written tests, so you must **focus on how students confront challenges** rather than just the final outcome. The goal is to track progress in soft skills through structured observation over time.



What to look for:

- Are students breaking tasks into steps? Observing decomposition helps trainers see if students can solve complicated issues by simplifying them.
- Do they recognize patterns in mistakes or successes? Identifying patterns shows whether they adjust their thinking based on experience.
- Can they explain their reasoning? Strong communication skills are demonstrated when students articulate their thought process clearly.
- Are they adapting when they encounter challenges? Resilient learners modify their approach instead of giving up when a problem becomes difficult.

How to structure observations:

- ✓ Keep a simple checklist to track student progress across multiple activities.
- ✓ Observe students in different contexts, such as group work, individual problem-solving or real-life decision-making.
- ✓ Provide immediate, specific feedback based on what was observed, helping students connect their actions to outcomes.
- ✓ Encourage students to reflect on their performance by asking questions like: “*What strategy worked best? How would you improve next time?*”

Observation **allows you to provide real-time guidance** and adjust teaching methods to meet students where they are. Focus on small improvements and encourage students to reflect on their strategies, reinforcing the idea that structured thinking leads to better outcomes.



Self assessment techniques

Self-assessment is a key approach for reinforcing soft skill development. **Reflection allows students to recognize their progress**, refine their thought processes and build confidence in their abilities. In CT-based training, **self-assessment helps learners become more aware of how they confront challenges** and respond to changing conditions. However, traditional written self-reflection may not be effective for all learners. Using verbal and hands-on approaches ensures that assessment remains accessible and practical.

Low-tech methods for self assessment:

- ☐ **Storytelling and verbal reflection:** Ask students to share a real-life situation where they applied CT
- ☐ **Hands-on demonstration:** Instead of explaining in words, have students walk through their approach step-by-step
- ☐ **Guided discussion questions:** Lead a conversation where students analyze their approach to a task

Instead of asking broad questions like *“What did you learn?”*, guide students with specific prompts that encourage deeper reflection. Keep discussions practical and relevant to their daily lives to make self-assessment meaningful.



Example:

If a student shares how they managed their time for a busy day, ask:

“What part of your plan worked best and why?”

“If you had to do it again, how would you adjust your schedule?”

“How did breaking tasks into steps help you stay on track?”



Group assessment and peer feedback

Assessing soft skills through group activities and peer feedback can give you a different perspective into how your students collaborate, communicate and apply CT strategies in real-time. Group evaluations highlight how students work in a team setting, giving you a clearer picture of their soft skills development.

Traditional assessments can feel intimidating or disconnected from daily experiences for low-skill adult learners. Instead, **peer assessment encourages active engagement and reinforces self-awareness**. Students can learn to recognize their strengths and areas for growth by analyzing how others confront challenges.

How to structure peer feedback:

- ☐ **Paired discussions:** Have students explain their approach to solving a problem to a peer.
- ☐ **Small group collaboration:** Assign a task that requires students to compare their methods and identify the most effective approach together.
- ☐ **Guided review:** Guide learners through a structured reflection on their group work experience



Make peer feedback constructive and supportive by modeling positive feedback techniques. Start with what worked well, then introduce aspects to refine.

For example, instead of saying *"You didn't communicate clearly,"* encourage learners to say, *"Your explanation was helpful, but adding an example could make it clearer."* This builds confidence and collaboration skills while reinforcing structured thinking.

Verbal feedback



Feedback is essential for soft skill development because it helps students understand not just what they did, but how they can improve. In CT-based training, verbal feedback should be structured, focusing on process over results to encourage continuous learning. For low-skill adult learners, constructive verbal feedback builds confidence, reinforces structured thinking and helps them recognize their progress.

Instead of just pointing out mistakes, you should highlight specific behaviors, guide students in self-assessment and help them see how their approach to problem-solving, communication or teamwork is evolving over time.

Example

Use "I noticed that..." statements to make feedback specific. Instead of general praise or criticism, say:

"I noticed that you started by breaking the task into steps. That helped keep the group organized."

"I noticed that you adjusted your approach after hearing a new idea. That showed adaptability."

Focus on growth, not just results. Encourage students to see improvement over time rather than just evaluating success or failure. Ask:

"What did you do differently this time compared to the last activity?"

"How did your approach change after receiving feedback?"

Encourage self-reflection before giving external feedback. Instead of immediately correcting students, ask them to reflect on their own work:

"What part of this task felt easiest for you?"

"If you could redo this, what would you change?"

Make feedback timely and relevant. Instead of waiting until the end of an activity, provide real-time verbal feedback as students are working. This keeps feedback actionable and immediately applicable, helping students adjust and improve on the spot.





Rubrics and checklists

Assessing soft skills in CT-based training requires a structured yet flexible approach. Since these skills develop gradually, you as a trainer need **clear and practical ways to track progress over time**. Rubrics and checklists provide an effective way to evaluate soft skills without relying on traditional testing methods.

A well-designed rubric helps trainers observe and assess skills consistently, while checklists ensure that students understand what's expected and can reflect on their progress. For low-skill adult students, **visual and simple assessment tools work best**, reinforcing structured thinking without overwhelming them with formal evaluation.

How to create a soft skills rubric

A rubric should define key CT skills and describe what effective application looks like at different levels of proficiency. You can adapt the complexity based on students' learning levels.

Example

Instead of marking a student as simply "good" or "bad" at problem-solving, use a rubric like this:

Soft skill	Emerging	Developing	Proficient
Problem-solving	Struggles to break problems into steps and often guesses solutions.	Can break tasks into steps but needs help organizing them logically.	Independently applies structured steps to solve challenges effectively.
Communication	Has difficulty structuring thoughts clearly.	Can explain reasoning but needs prompting.	Expresses ideas logically and concisely.




Rubrics and checklists

How to create a soft skills checklist

A checklist should outline key skills and behaviors that indicate progress. Keep it simple, using observable actions that you can easily track during activities.

Example

Soft skill	Observation to track
Problem-solving	Breaks tasks into steps independently
Critical thinking	Evaluates different solutions before deciding
Collaboration	Contributes actively to group tasks
Communication	Explains ideas clearly and logically

 You can use this checklist during activities, checking off skills your students demonstrate and selecting areas for improvement.

To ensure assessments remain relevant and supportive, you should integrate feedback naturally into lessons. Instead of formal grading, provide informal but specific feedback using observations.

Encourage students to track their own progress by reviewing their checklist at the end of a session, helping them take ownership of their skill development.



Challenges when assessing soft skills development

Assessing soft skills can be challenging because they develop gradually and are harder to measure compared to technical skills. Evaluating skills like problem-solving and communication requires observing behaviors and progress over time. For trainers working with low-skill adults, **it's crucial to create assessments that are encouraging and reflective** rather than judgmental.

What makes soft skill assessment difficult?

Soft skills are subjective

There is no correct answer when it comes to soft skills, making progress harder to quantify. You must look at behavioral changes rather than definitive results.

Students may not recognize their progress

Without structured reflection, students may feel they aren't improving, even when they are. Regular feedback is essential to help them track progress.

Low skills adults may lack confidence

Some students may hesitate to participate or fear making mistakes. If assessments feel like tests, they may disengage instead of seeing them as opportunities for improvement.

How to overcome these challenges

- ✓ **Use multiple assessment methods:** Combine observation, peer feedback and guided discussions to create a more holistic view of student progress. This helps capture different aspects of soft skill development.
- ✓ **Reinforce progress regularly:** Acknowledge small improvements, even if they seem minor. Show students how their ability to solve problems, communicate or adapt has improved over time to build their confidence.
- ✓ **Focus on practical applications:** Instead of abstract evaluations, relate assessments to real-life tasks students experience daily. For example, measure problem-solving skills through budgeting exercises or teamwork skills through group activities.

The background image shows an elderly woman with short brown hair and black-rimmed glasses, wearing a light-colored cardigan over an orange top. She is seated at a white table, looking down at a tablet device. In the background, a man in a white shirt is also seated at a table, looking down at some papers. The setting appears to be a library or a study area with bookshelves visible in the background.

UNIT 4

*Case study and
activities*



Case Study: Teaching soft skills in adult workforce development

Background

A study conducted in 2020 examined adult workforce development training in the U.S. to assess how structured soft skills training can improve problem-solving, collaboration, and communication in workplace settings. The study compared multiple training programs that integrated structured thinking methods (a core element of CT) to help learners develop practical employability skills.

The goal was to determine whether step-by-step learning methods, similar to CT principles like decomposition, pattern recognition, and structured reasoning, could enhance adult learners' ability to apply soft skills in real-world job settings.

Implementation

The study was conducted in workforce training programs, focusing on structured soft skills development. Trainers guided students through step-by-step problem-solving, teamwork exercises, and structured discussions. Students practiced breaking down workplace challenges, recognizing patterns, and adapting to feedback. Simple, structured activities helped build confidence and logical thinking.



Case Study: Teaching soft skills in adult workforce development

Outcomes

The results showed that learners who participated in structured CT-based soft skills training demonstrated significant improvement in problem-solving, adaptability and collaboration. Many students became more confident in breaking down workplace challenges and structuring their decision-making processes. Observations and self-assessments revealed that participants were more likely to apply critical thinking strategies when faced with unfamiliar situations. Employers and trainers also reported noticeable growth in students' ability to communicate their reasoning and work effectively in teams.

Challenges

One of the primary challenges was the initial hesitation among students, as many lacked confidence in their problem-solving abilities. Some struggled with breaking problems into steps or articulating their reasoning. To address this, trainers had to reinforce concepts through repeated practice and real-life examples. Another challenge was maintaining engagement, as some learners needed more time to adjust to structured thinking methods. Providing ongoing support, positive reinforcement, and relatable scenarios helped learners gradually build their confidence and apply CT principles effectively.

Conclusion

This case study highlights how structured, step-by-step soft skills training, which mirrors Computational Thinking principles, can significantly improve soft skills in adult students. The study confirms that low-skill adults benefit from structured assessments and guided reflections, reinforcing the need for practical, real-world applications in training.

Activity 1: Quiz



1. Which of the following is an effective way to assess soft skills without using written tests?

- a) Observing if students memorize CT concepts
- b) Peer discussions where students explain their problem-solving approach
- c) Giving multiple-choice exams on teamwork definitions

2. Why is feedback important when assessing soft skills?

- a) It eliminates the need for observation-based assessment
- b) It ensures that learners complete their tasks faster
- c) It helps learners reflect on their progress and improve their thinking process

3. What is the main goal of assessing soft skills in CT-based training?

- a) To track progress in problem-solving, adaptability, and teamwork over time
- b) To focus only on technical skills rather than soft skills
- c) To determine which students should pass or fail the course

4. What is the best way to track a student problem-solving improvement?

- a) Giving them a final exam on Computational Thinking definitions
- b) Asking them to write an essay about CT concepts
- c) Observing how they break down challenges and adjust their strategies

5. How can trainers help low-skill adult students recognize their own progress?

- a) By using structured checklists, peer discussions, and guided reflections
- b) By only correcting mistakes without offering verbal feedback
- c) By focusing on memorization rather than real-world applications

[illegible]

LINK

SUMMARY

This module explored how Computational Thinking can support the development of soft skills in adult learners by making structured thinking more accessible and relatable.

You learned how to identify key interpersonal competencies, such as communication and collaboration, and saw how CT core principles like decomposition and pattern recognition can help improve them through everyday activities.

We also looked at practical challenges that low-skilled adults may face in CT-based learning and discussed how to overcome them with simple real-life-based approaches.

Throughout the module, examples and activities showed how CT can be adapted to develop essential 21st-century skills that enhance learners' confidence and participation in both learning and life.



CALL TO ACTION:

Reflect on what you've learned:

- *What are the key 21st-century soft skills, and why are they essential for adult learners?*
- *How can computational thinking support the development of interpersonal competencies?*
- *What tools and strategies can you use to assess and promote soft skills in CT activities?*

GLOSSARY

Computational Thinking or CT: Solving problems like a computer would, step-by-step.

Decomposition: Breaking a big problem into smaller parts.

Abstraction: Focusing only on the important details.

Pattern Recognition: Spotting trends or things that repeat.

Algorithm: A set of instructions to complete a task.

Iteration: Repeating a process to improve it.

Unplugged Activities: Learning CT without screens using games, puzzles, etc.

Debugging: Finding and fixing errors in a process.

Soft Skills: Non-technical abilities that help people work well with others and adapt to challenges.

Gamification: Using game elements (like points or challenges) in learning.

Digital Literacy: Knowing how to use digital tools safely and effectively.

Inclusion: Making learning accessible to everyone, no matter their background.

Scaffolding: Supporting learners step-by-step so they can gradually do more on their own.

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