

**SUP**porting Problem-solving  
mentalities in lifelOng  
leaRning for Trainers |

**SUPPORT**

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## Intellectual Output 3

**POLICY RECOMMENDATIONS**

**on the Necessity of Inclusive  
Policies towards Enhancing  
Problem Solving Mentalities**

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**Problem Solving in**  
**LifeLong Learning**

The logo graphic consists of three overlapping circles: a red one at the top left, a green one at the top right, and a yellow one at the bottom right.

## Project Partners

### Coordinator



### Partners



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## Policy Recommendations on the necessity of inclusive policies towards enhancing problem solving mentalities

### 1. Policy context

Problem solving is the process of identifying a problem, developing possible solution paths, and taking the appropriate course of action. It is the view of the "SUPport of Problem-solving mentality in lifelOng leaRning for Trainers" SUPPORT consortium that adult learning consists of a an everlasting process of problem posing and problem-solving, especially in the case of dealing with persons with low level of skills or qualifications where the learning environment is not only challenged by the knowledge to be acquired but has to deal with a variety of existing preconceptions, social exclusion, stereotypes, language barriers, cultural limitations and others.

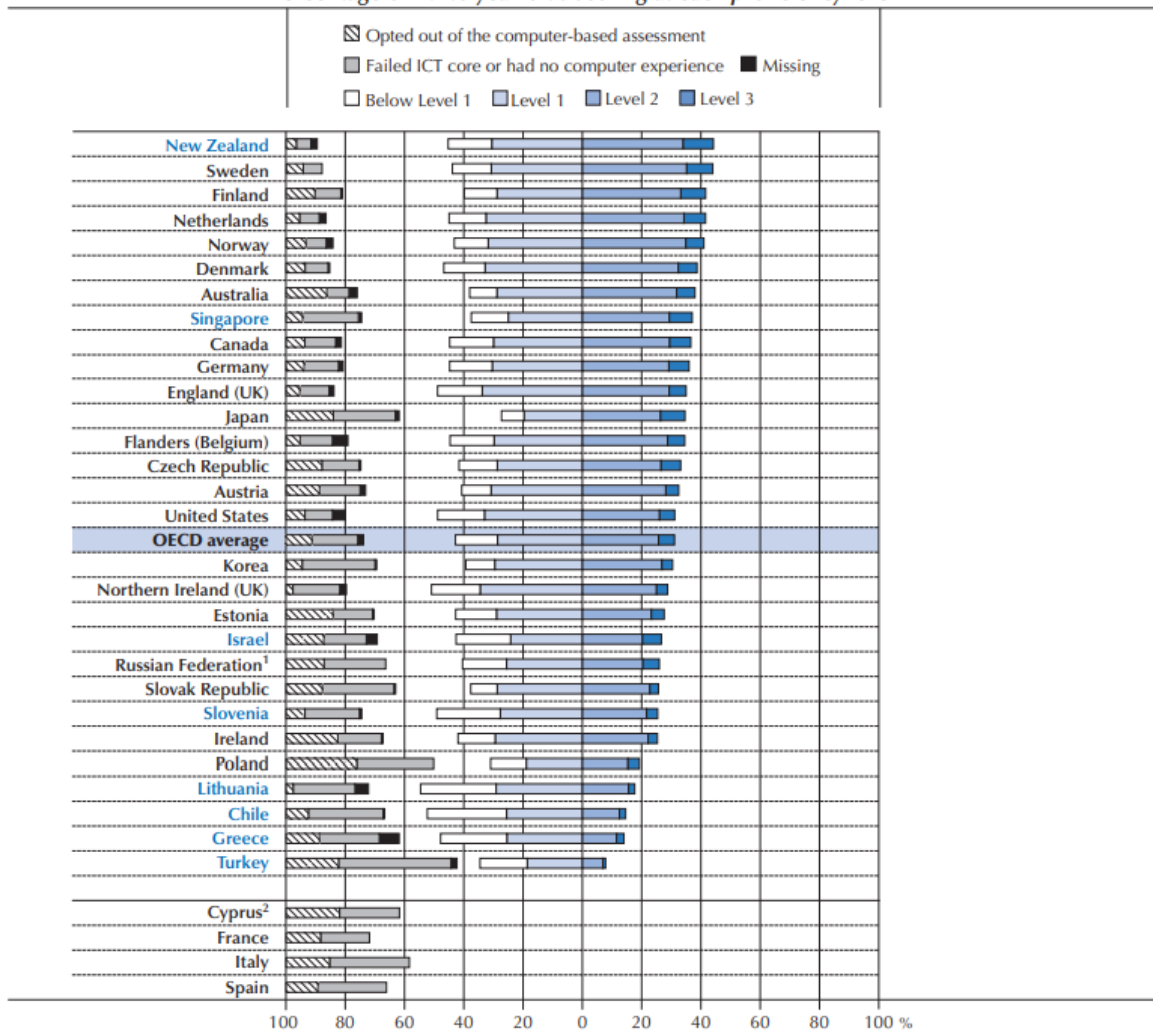
The current European situation concerning workplace and life balance is challenging adults' expertise (Tynjälä et al. 2014)<sup>1</sup>, and there seems to be a continuing rise in employees and workers' need for better interpersonal and cognitive skills. In this way, professional development is a key approach in helping adults to meet the needs of nowadays working reality. Therefore, new, concise and person-oriented ways to enhance lifelong, life-wide and workplace learning are needed, as professional expertise and abilities regarding intuitive problem-solving are becoming increasingly important.

This is highlighted through findings of PIACC, the Programme for the International Assessment of Adult Competencies. PIACC is an OECD survey of adult skills that measures literacy, numeracy and problem solving in technology-rich environments. The survey underlines the importance of those skills for keeping up with and benefitting from the transformation of work and life due to technology. The findings of the survey indicate that about one in four adults of OECD member states have limited or no experience with computers or lack confidence in their ability to use them. Almost one in two adults only attained the proficiency level 1 (out of 3) or less in problem solving in technology-intensive environments. This means they "can only use familiar applications to solve problems that involve few steps and explicit criteria, such as sorting emails into pre-existing folders." (OECD 2016) According to the survey results, it is around the age of 25 that the problem-solving skills in technology-rich environments reach its peak. These findings emphasize the importance of supporting problem solving in lifelong learning.

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<sup>1</sup> Anne Virtanen, Päivi Tynjälä & Anneli Eteläpelto (2014) Factors promoting vocational students' learning at work: study on student experiences, *Journal of Education and Work*, 27:1, 43-70, DOI: 10.1080/13639080.2012.718748

Figure 2.16 ■ **Proficiency in problem solving in technology-rich environments among adults**  
Percentage of 16-65 year-olds scoring at each proficiency level



Notes on the Figure: The PIAAC results from 2012 and 2015 show that only 5.4% of adults scored the highest proficiency level of problem solving in technology-rich environments scale, level 3. Around one in four adults (25.7%) scored at Level 2. That means that on average around one in three adults (31.1%) is proficient at the two highest levels of problem-solving (Level 2 or 3). This proportion varies significantly among different countries, from 44.0% in Sweden to 14.0% in Greece.

Overall, the largest proportion of adults (28.7%) scored at Level 1 and around one in seven adults (14.2%) scored below Level 1. Again, the results vary for different countries: In Lithuania, more than one in four adults (25.5%) scored below Level 1. In contrast, fewer than one in ten adults in the Slovak Republic (8.9%) and Austria (9.9%) scored below Level 1.<sup>2</sup>

Additionally, according to many researchers, trainers solve problems not only during the interactive, classroom teaching phase but also when they evaluate the previous

<sup>2</sup> [https://www.oecd.org/skills/piaac/Skills\\_Matter\\_Further\\_Results\\_from\\_the\\_Survey\\_of\\_Adult\\_Skills.pdf](https://www.oecd.org/skills/piaac/Skills_Matter_Further_Results_from_the_Survey_of_Adult_Skills.pdf)

lesson and plan for the next. In this respect, the whole pedagogical process, starting with planning and concluding with (self)evaluation, is seen as analysing, acting, reflecting, making decisions and solving problems (Lampert 2001)<sup>3</sup>. Every element of the teaching profession is therefore permeated by problem solving: "Teaching is increasingly seen as a professional activity requiring a careful analysis of each situation, choice of objectives, development and monitoring of suitable learning opportunities, evaluation of their impact on students' achievement, responsiveness to students' learning needs and a personal or collective reflection on the whole process" (OECD 2005).

### 1.1. European level

Problem solving plays a role in several European frameworks for lifelong learning:

The Key Competences Framework for Lifelong Learning, published by the European Commission in 2006 and updated in 2019, serves as a reference for stakeholders in education and training. It identifies competences that are "essential to citizens for personal fulfilment, a healthy and sustainable lifestyle, employability, active citizenship and social inclusion." (European Commission 2019) The eight key competences featured in the framework range from literacy competence to cultural awareness and expression competence. Problem solving is, besides other skills such as critical thinking and creativity, included as a transversal skill and is therefore incorporated in each of the key competences. Concerning personal, social and learning to learn competence for example, "[a] problem-solving attitude supports both the learning process and the individual's ability to handle obstacles and change." (European Commission 2019). Regarding entrepreneurship competence on the other hand, problem solving is considered part of its foundation.

Another important framework of the European Commission relating to competences is the new European Skills Agenda for Sustainable Competitiveness, Social Fairness and Resilience<sup>4</sup>, published in 2020. It calls for a shift in skills to respond to both the green and digital transition and to support economic recovery from the impact of the COVID-19 pandemic. The Skills Agenda consists of five building blocks: working together under a Pact for Skills, developing skills for jobs, empowering people to build skills throughout life, setting ambitious skills objectives and unlocking investment. While, as in the Key Competences Framework, problem solving is again referred to as a transversal skill, in the Skills Agenda it is not given a central role and it is only related to work. Problem solving is mentioned as part of the skills for jobs and its importance for the labour market is highlighted. In the context of "Skills for Life", problem solving is not addressed; that said, a more thorough overview of "Skills for Life" is yet to be published.

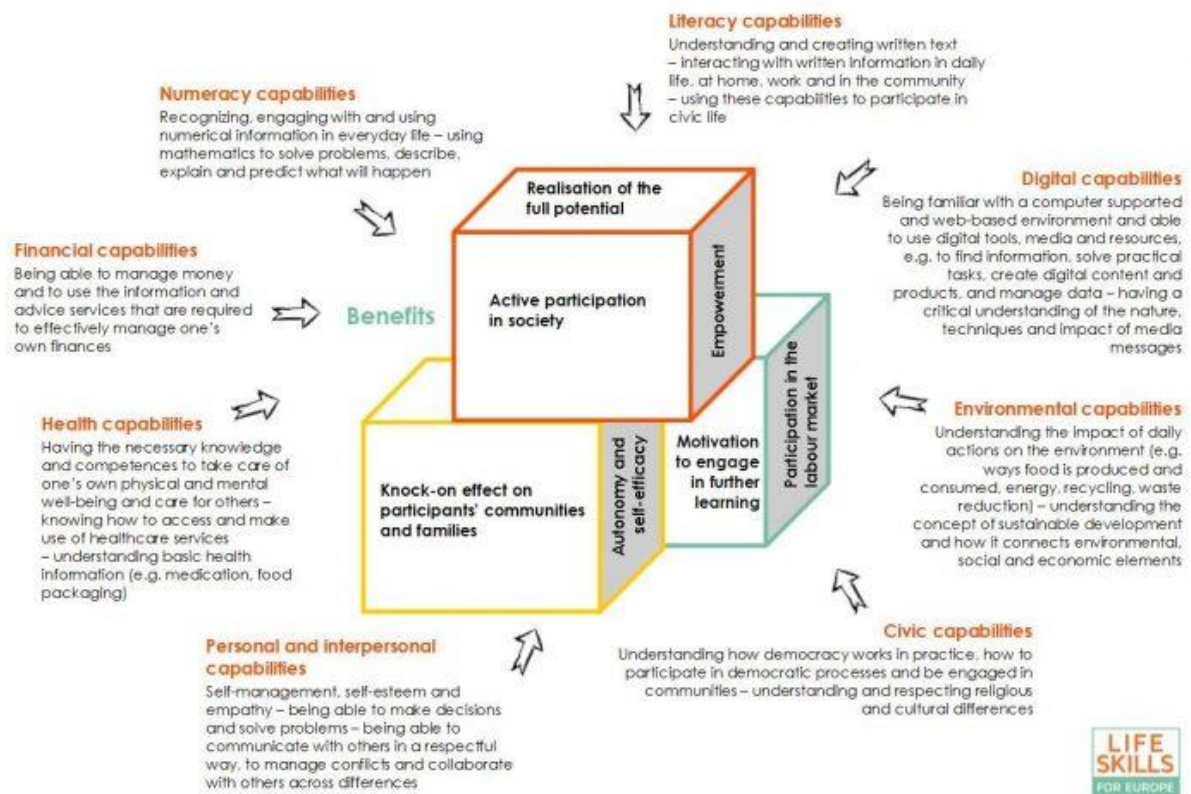
<sup>3</sup> Lampert, Magdalene (2001), Teaching problems and the problems of teaching, June 2002, Journal of Mathematics Teacher Education 5(2):187-199, DOI:10.1023/A:1015870009117

<sup>4</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0274>



### Problem solving as part of holistic approaches to learning

Problem-solving also plays a key role in frameworks that take a holistic approach to learning. A case in point is the Life Skills for Europe (LSE) project (2016-2018)<sup>5</sup>, which aimed to improve basic skills provision in Europe by explaining, further developing and upscaling the life skills approach. One of its outputs is the LSE learning framework which includes eight interlinked capabilities, like numeracy capability and health capability, that are necessary to be active participants in life and work. The learning framework promotes learning that “incorporates facilitative approaches which encourage self-reflection and critical thinking, help learners to take charge of their own learning and problem-solve for themselves” (Life Skills for Europe 2018). It thus takes a similar approach to the Key Competences Framework and understands problem solving as a transversal skill. For instance, identifying solutions to problems builds a foundation for personal and interpersonal capability and “solv[ing] problems of everyday life using the basic mathematical functions” (Life Skills for Europe 2018) are an important basis for numeracy capability.



[Box/infographic: The Life Skills for Europe learning framework encompasses the following capabilities:

- ✓ Literacy and language capability,
- ✓ Numeracy capability,
- ✓ Financial capability,

<sup>5</sup> <https://eaea.org/project/life-skills-for-europe-lse>

- ✓ Digital and media literacy capability,
- ✓ Health capability,
- ✓ Environmental capability,
- ✓ Civic capability]

### **Problem solving in the context of digital competences**

On the European level, there are two important frameworks focusing on digital competences that both feature problem solving: the European Digital Competence Framework for Citizens (DigComp)<sup>6</sup> and the European Framework for the Digital Competence of Educators (DigCompEdu)<sup>7</sup>.

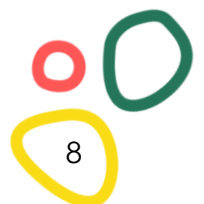
DigComp serves as a reference tool for planning initiatives on European and Member State level to improve the digital competences of citizens. The framework describes 5 competence areas and as problem solving is one of them, it is considered to have a significant role regarding digital competences. DigComp allocates four different competences to the competence area of problem solving: solving technical problems, identifying needs and technological responses, creatively using digital technologies and identifying digital competence gaps (European Commission 2017a). The newest version of DigComp, 2.1, additionally describes eight different proficiency levels, with levels 1 and 2 building the foundation for competences and levels 7 and 8 indicating high specialization. Problem solving is characterizing the complexity of tasks at proficiency levels 3-8, therefore underlining the importance of problem-solving skills for gaining higher levels of proficiency. At the intermediate level 3 for example, citizens are able to solve straightforward problems on their own, while at proficiency level 8 they can "create solutions to solve complex problems with many interacting factors" (European Commission 2017a).

DigCompEdu addresses the digital competences that educators at all levels of education and in different contexts need "to fully exploit the potential of digital technologies for enhancing teaching and learning and for adequately preparing their students for life and work in a digital society." (European Commission 2017b). The framework includes 22 competences that are organised in six areas which in turn can be assigned to three groups of competences: educators' professional competences, educators' pedagogical competences and learners' competences. Area 6, Facilitating Learners' Digital Competence, features five competences that resemble the competence areas of DigComp and therefore includes problem solving. To facilitate digital problem solving is understood as "[t]o incorporate learning activities, assignments and assessments which require learners to identify and solve technical problems, or to transfer technological knowledge creatively to new situations." (European Commission 2017b). Problem solving is thus integrated in DigCompEdu, but only in relation to learners, not educators.

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<sup>6</sup> <https://ec.europa.eu/jrc/en/digcomp/digital-competence-framework>

<sup>7</sup> <https://ec.europa.eu/jrc/en/digcompedu>





## 1.2 Partner country perspectives

The perspectives from the partners about whether transversal competences, including problem-solving, are considered important in the adult education/lifelong learning policy in their country give a mixed picture.

In Spain, European frameworks and strategies in adult education and lifelong learning, such as the European Agenda for Adult Learning and Upskilling Pathways, are not reflected in national or regional policy. In Italy however, there are constant references to the European Key Competences framework in education and training policy papers. Still, the traditional learning and training structures like universities and training centres do not always adapt their training activities to the competences development that is suggested by the European Commission.

Also in Greece, policy documents continuously refer to “transversal competences”, yet no indicators have been developed to measure a possible implementation. Similarly, European frameworks and strategies in adult education and lifelong learning are extensively mentioned mainly through reports and policy briefs but are not practically implemented. The main “vehicles” of these strategies have been the Municipality Centers for Adult Education (KeDiViM) whose state of operation differs from place to place, without a general strategy in place that would ensure equal access to adult education in all areas.

Interestingly, the concept of “life skills” is also increasingly understood; if not at the policy level, then by the adult learning providers. Three out of four project partners who have contributed to this report with their national perspectives say that they work with a life skills framework in their organisations.

Project partners also indicate that digital competences are gaining in importance; in some countries, new initiatives have been launched to facilitate the acquisition of digital competences among all citizens. For example, the Greek government has initiated the Digital Citizen’s Academy<sup>8</sup>, which comprises of tools from 32 different providers, some of which foster problem-solving. Also project partners themselves have been providing courses and launching initiatives to support the development of digital skills among adults, frequently in connection with European frameworks. For example, the SUPPORT project partner from Spain introduces its learners to the DigComp, while the partner from Italy has been working on developing the STEM competence among young people through digital skills and gamification.

When it comes to professional development for adult educators and teachers, in Spain and Italy there are enough opportunities, according to the project partners. However, in Greece there is a need for creating more opportunities, as is the case in Lithuania. The Lithuanian project partner focuses primarily on providing such opportunities for teachers and educators. Training sessions include theoretical lectures, practical activities and counselling, if requested, with the broad aim of improving, for example, digital competences and entrepreneurship.

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<sup>8</sup> <https://nationaldigitalacademy.gov.gr>

## 2. Good practice examples

Adult learning providers across Europe have been implementing various problem-solving tools and methods in their day-to-day work. The SUPPORT project partners have contributed with a diversity of examples that can be implemented by teachers and educators with a collection of 20 practices in total<sup>9</sup>. The methods address different stages of problem-solving: problem-setting, brainstorming and decision-making. They also encourage learners to go deeper into different aspects of the problem, taking various perspectives, developing self-reflection, compassion and personal motivation. What follows is an overview of three approaches to problem-solving that can be adopted in different settings; by organisations and educators alike.

### Design Thinking

Widely applied in the construction and engineering fields, design thinking is a methodology that can be implemented in any team looking for a step-by-step approach to problem-solving. The five steps include emphasizing (understanding the problem), defining, ideating (similar to brainstorming), prototyping and testing the solution. In addition to the process, it is also important to involve a multidisciplinary team, who will provide diverse perspectives, and to encourage an open attitude. Empathy, playful cooperation and understanding failure as an opportunity are all elements that can successfully foster a problem-solving mentality<sup>10</sup>.

### Peer Mentoring

Peer mentoring is a well-known form of mentorship, usually between a person that has been through a particular experience and a person who is new to it. Mentors can provide support, education, insight. In adult learning, peer mentoring has been promoted by Paulo Freire, a Brazilian educator and one of the key founders of critical pedagogy. Freire underlined the importance of autonomy among the mentees, emphasizing that the mentor cannot expect the mentee to replicate their own ideas, beliefs and attitudes.<sup>11</sup>

### Creative Problem Solving

Creative Problem Solving (CPS) is an approach that can help to think outside the usual cognitive schemes, and to make associations that might seem unlikely at first sight. Similarly to other methods, it is a process that involves a few stages: from understanding of a problem, to generation of ideas, preparation of actions, and planning of a personalized approach. What is unique, however, is that it encourages "horizontal imagination" as opposed to vertical logic: many ideas are encouraged, and possible solutions are explored in a short time. In adult learning, this approach has been used for example to promote alternative lifestyles of sharing in urban contexts<sup>12</sup>.

<sup>9</sup> <https://supportae.eu/index.php/io1-context-analysis/>

<sup>10</sup> [Design Thinking in Adult Education: A method with potential! | EPAL \(europa.eu\)](#)

<sup>11</sup> Paulo Freire, "Mentoring the mentor: a critical dialogue with Paulo Freire," Counterpoints: Studies in the Postmodern Theory of Education, Vol 60, 1997

<sup>12</sup> [https://www.uniba.it/ricerca/dipartimenti/scienze-politiche/ricerca-e-terza-missione/progetti/creatuse/02IO2GuideCPSNLP\\_IT.pdf](https://www.uniba.it/ricerca/dipartimenti/scienze-politiche/ricerca-e-terza-missione/progetti/creatuse/02IO2GuideCPSNLP_IT.pdf)

### 3. Successes and challenges in implementing the approach of problem solving on the organisational level

Adult education centers and educators face multiple challenges that reflect either the socioeconomic status of the trainees or the stereotypes and conventional perceptions of learning difficulties, such as the absence of intrinsic motivation to participate, social isolation or lack of life opportunities (e.g. difficulty in finding gainful employment). All of these are problems of holding back learning for change. As one member of the SUPPORT consortium estimates, the biggest problems learning providers have to deal with, is a change of attitude from passive and hopeless tendencies to taking responsibility for the change - away from established patterns, in order to avoid self-fulfilling prophecy, while respecting the objective obstacles each person faces.

In order to do this, a strategy must be adopted where barriers are shared and opportunities of solidarity arise, as an occasion for improving life. Within this context, the educators must convince that they are providing a springboard for self-awareness through patterns for creative decision-making, collaboration and research. The biggest challenge is to persuade adults not to look for ready-made solutions but to become researchers themselves. Exploratory learning is the first ray of change because it puts the individual in a position of unrest against status quo, as also in deconstruction of the habitus, which means the expectations produced by the current social status.

In addition, many adult learning providers are keen to adopt new methodologies and to look for innovative approaches, yet lack the time or staff resources to implement them. Busy with the need to react to accumulating problems, for example due to reduced funding or the impact of the ongoing health crisis, they find it difficult to establish a structure that would allow them to approach problem-solving on a structural level.

## 4. Recommendations

### 4.1 Recommendations for practitioners and learning providers

**Embed problem-solving approaches across all activities of your organisation, from course delivery, to planning and management.** By fostering a problem-solving mentality cross-cuttingly, and encouraging the use of various problem-solving tools, you can not only find innovative solutions to various challenges faced by providers – such as outreach or learner retention – but also encourage collective and democratic decision-making.

**Encourage capacity-building and an exchange of experiences in your organisation.** Peer support groups, in-service training, opportunities to share experiences and good practices, are all valuable in fostering a problem-solving mentality. Consider also providing more mentoring and coaching to provide individualized support.

**Foster learner-centred and participatory approaches.** Problem solving is associated with Critical Thinking and Learn to Learn area. As such, it is very important that the AE providers promote the active involvement of their learners from the very beginning. It means giving voice to their expectations and structuring individualised learning paths that offer a sense of a targeted intervention of a person towards themselves and their needs, followed by proper guidance and not patronage.

### 4.2 Recommendations for policy makers

**Encourage the use of European frameworks that encourage a holistic approach to learning.** Several frameworks have been developed at the European level that promote learner-centred and competence-based learning. From the Key Competence Framework to DigComp and to life skills frameworks, such documents can provide guidance and inspiration without being prescriptive. Importantly, many of them include problem-solving as a transversal competence.

**Encourage cooperation between different sectors to provide opportunities for learners and educators to improve problem-solving and hands-on practice.**

Cooperation with the VET sector, employers, environmental stakeholders, municipalities and social partners can support learners and educators alike in finding innovative approaches to problem-solving and allowing them to think outside the box.

**Embed problem-solving in national curricula and skills frameworks as a transversal competence.** From coping with life transitions, to finding one's way in a rapidly changing and increasingly digital world, adults need to be able to foster problem-solving as a competence in diverse circumstances. Adult learning providers need curricula and skills frameworks that approach problem-solving as a transversal competence, and that give enough flexibility to adapt them to the needs of learners.

**Provide funding for in-service training.** The experience of the SUPPORT project partners shows that opportunities for in-service training among adult educators remain insufficient. Adult educators need prospects for professional development to be able to continuously improve their skills, including problem-solving.



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