



E-LEARNING - MODULES 1-8

<p>1 DIGITAL SERVICES</p>	<p>2 SAFETY AND LEGAL ISSUES RELATED TO TECHNOLOGY</p>	<p>3 DIGITAL INFRASTRUCTURE</p>	<p>4 THE POTENTIAL OF NEW TECHNOLOGIES FOR HEALTHY AND ACTIVE AGEING</p>
<p>5 EXAMPLE OF IMPLEMENTING SMART CARE SOLUTIONS</p>	<p>6 EHEALTH SOLUTIONS</p>	<p>7 HOW INNOVATIVE MONITORING TOOLS CAN HELP YOU TO TAKE CARE OF YOUR LOVED ONES</p>	<p>8 APPRECIATIVE COMMUNICATION STYLES</p>

Publication II

Innovative Learning Environments

Tools for Addressing Current Skills Gaps



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1. Definition of innovative learning environments

1.1. What is a learning environment?

Learning environments are, in most cases, designed to support the development of skills and knowledge in a particular field. As defined by the OECD, a learning environment is an organized learning for given groups or learners around a singled pedagogical core and shared learning leadership (2017, 9). Williams (2022) defines it as an area that provides opportunities for students to learn through many different methods, including lectures, seminars, discussions, and hands-on activities. The Glossary of Educational Reform (2014) states that the learning environment refers to the diverse physical locations, contexts and cultures in which students learn.

The learning environment is larger than a particular class, school, workplace, or learning programme. It includes learning activities and outcomes, learner characteristics, teaching and learning objectives, assessment measures that support learning, etc., and is not just a place where learning takes place (e.g., a classroom) – it is a space where learners feel safe, supported, and inspired. Shared governance allows for design decisions to optimise learning for participants (OECD, 2017; Bates, 2019). Some of the components of learning environments (from the teachers' perspective) are shown in Figure 1.



Figure 1: A learning environment with its components from a teacher's perspective. Adapted from Bates, 2019.

Learning environments provide a safe and conducive space for learning, opportunities for learners to interact with each other, and access to resources that help learners acquire new skills and build on existing skills in a variety of ways. Learning environments allow people to come together, learn, and grow (Williams, 2022). There are several types of learning environments that differ in the way learners learn and interact with each other. The basic characteristics of the four most common types of learning environments – learner centered, knowledge centered, assessment centered, and community centered – are shown in Figure 2.

Learning centered	Knowledge centered	Assessment centered	Community centered
<ul style="list-style-type: none"> Builds on learner's strengths, interests, needs, perspectives and cultural practices. Focuses on the attention that the facilitators of learning need to provide to the knowledge, skills, attitudes, and beliefs that learners bring to the classroom. 	<ul style="list-style-type: none"> Focus on the knowledge that learners acquire through the course materials. Well organized knowledge with clear structure for what is expected from learners – to achieve certain milestones or accomplish certain tasks. 	<ul style="list-style-type: none"> Provide opportunity for feedback that helps learners improve their skills or achieve a specific goal. Formative and summative assessment with clearly structured milestones. 	<ul style="list-style-type: none"> Connections to outside of classroom with focus on building a community that works together to achieve tasks. Focused on group interactions, group dynamics, and creating an environment where learners help one another to grow.

Figure 2: Basic features of four most common types of learning environments. Adapted from: Williams (2022) and Adams, Arce-Trigatti and Arce (2019).

1.2. Main characteristics of an effective learning environment

According to Williams (2022) and Heick (n.d), the main characteristics of an effective learning environment are as follows:

- The environment is for learning and different learning models are used.
- The environment is aligned with the goals of the institution.
- The environment is safe, engaging, and conducive to learning.
- Learners ask more questions than teachers.
- Questions are valued more than answers.
- Ideas come from a variety of sources.
- Classroom learning "empties out" into a networked community.
- Learning is personalized based on a variety of criteria.
- Assessment is consistent, authentic, transparent, and never punitive.
- Criteria for success are multiple, transparent, and co-created with learners.
- Habits of learning are constantly modeled.
- There are constant and creative opportunities to practice and grow.

An ideal learning environment is one that allows learners to take advantage of their natural abilities and learn how to apply them in a way that is beneficial for them. An ideal learning environment represents a supportive and safe community for students, integrated technology, provides resources for success, puts emphasis on collaboration and teamwork and provides opportunities for leadership development and fosters creativity (Williams, 2022).

1.3. Transition to innovative learning environments

Learning environments are, thus, in their very structure apt to incorporate innovative learning methods, adapt efficiently to user needs and employ different channels of knowledge transfer. It is therefore not too big of a step towards innovative learning environments. Innovative learning environments are learning ecosystems built on the principles of agile and dynamic education and training and are designed to enable a variety of collaborative, participatory, and independent approaches to teaching and learning. They typically consist of interconnected spaces with a high degree of visibility within and across different learning environments (Young, Tuckwell and Cleveland, 2021). In the pedagogical context, an innovative learning environment can be understood as a combination of an innovative space that supports a wide range of learning needs and situations, often through the provision of highly flexible interior and purpose-built furniture and innovative teaching and learning (Bøjer, 2021).

The best conditions for innovative learning exist when teaching, space, and organisation are aligned, as shown in Figure 3.

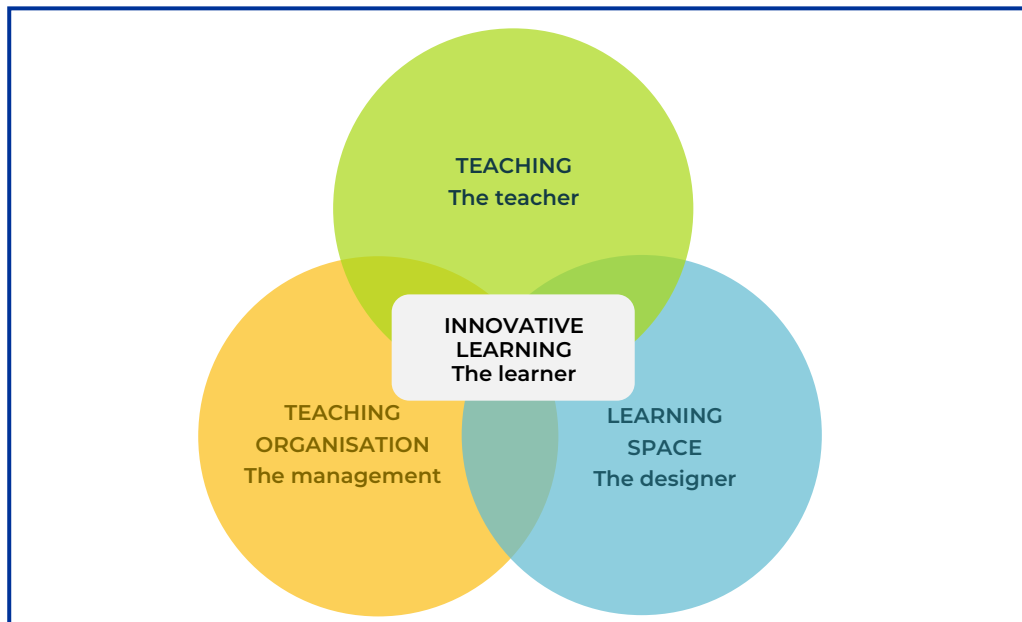


Figure 3: An alignment between teaching (the teacher), space (the designer) and organization (the teaching organization management) in innovative learning. Adapted from: Bøjer, (2021).

Learning contents, tools, methods and programmes that are part of an innovative learning environment are often designed in line with the principles of the spiral of inquiry (according to the needs of the market, according to the needs of those seeking knowledge, etc.) and based on the characteristics of those who learn. Engagement in the spiral of inquiry provides learners with the experience of leading change in their own setting (OECD, 2017). The spiral is graphically presented in Figure 4.

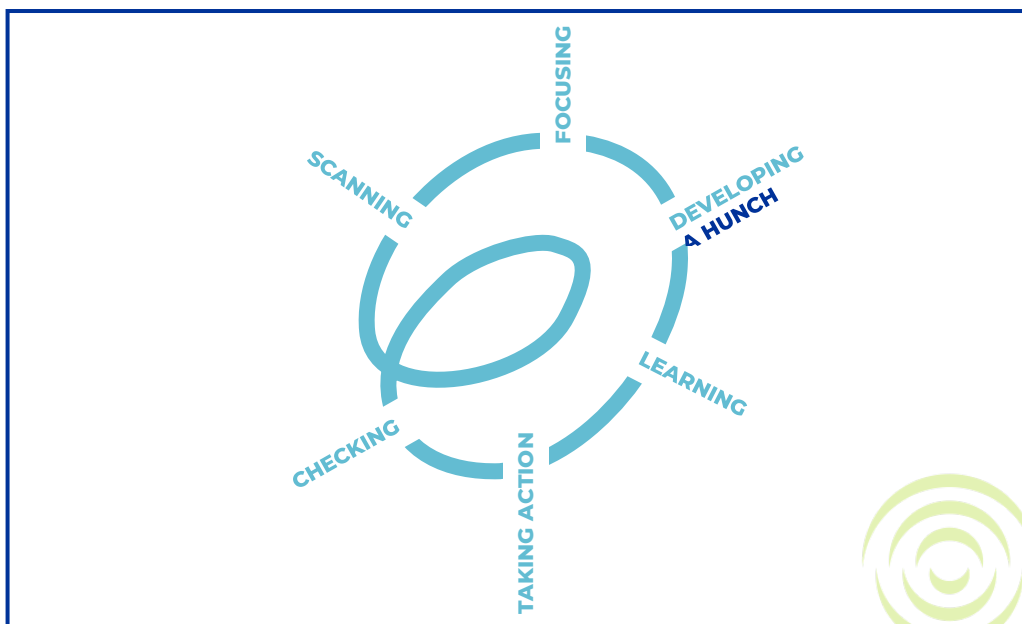


Figure 4: The Spiral of inquiry. Source: Halbert, J. and L. Kaser (2013).

The spiral of inquiry provides new space for professional learning. It invites learners to engage in a process that addresses real-world, learner-centered challenges and is an ongoing, intersecting, and interconnected process (Halbert and Kaser, 2013).

Let us take a brief look at what the different phases of the spiral of inquiry imply – at this point, it is important to emphasize that the phases presented are not rigidly sequential and often overlap (Halbert and Kaser, 2013; Mackrill, 2017):

1. **Scanning:** an inquiry and evidence-based way of thinking that looks at learning from a broader perspective and finds out what is happening for all learners from their perspective and from the perspective of their families and communities.
2. **Focusing:** in this phase, learning environments answer the question of where they want to focus their energy to transform experiences and outcomes for their learners. This phase uses information from the scan to identify an area for focused learning and action as a team. It builds on strengths and returns clarity.
3. **Developing a hunch:** learning environments asking themselves how they are contributing to the situation, and questioning their own behaviour and beliefs that drive their actions.
4. **Learning:** how and where can learning environments learn more about what to do. This phase is motivated by changing the learning experiences of learners and is directly related to the emphases established in the earlier phases of the spiral.
5. **Taking action:** deeper learning about new ways of doing things. This phase is characterized by a deep understanding of why new practices are more effective than older ones. This phase evaluates the impact of the learning process on the learner.
6. **Checking:** fundamental to a proof-oriented way of thinking. This stage is about having a high expectation that the actions in the learning environment will make a difference for all learners, providing information about the impact of the actions, and beginning to prepare for what comes next.

Innovative learning environments from around the world were studied in depth as part of the OECD Innovative Learning Environments Project, which began in 2008 and lasted a decade. The goal of the project was to find an answer to the difficult question of how to design a powerful learning environment so that learners in the 21st century can learn more effectively.

1.4. OCED 7+3 framework

The Innovative Learning Environments project developed the 7+3 framework that links 7 learning principles to 3 fundamental areas of innovation: the pedagogical core, learning leadership, and partnerships. 7 key recognised principles that should guide the development of learning environments in the 21st century are (OECD, 2017):

1. **Learners at the center** – the learning environment recognises learners as its primary stakeholders, encourages their active engagement, and develops their understanding of their own activities.
2. **The social nature of learning** – the learning environment is based on the social nature of learning and actively promotes well-organized cooperative learning.
3. **Emotions are integral to learning** – professionals in the learning environment are highly attuned to learners' motivations and the key role of emotions in learning success.
4. **Recognising individual differences** – the learning environment is very sensitive to individual differences among learners, including their prior knowledge.
5. **Stretching all students** – the learning environment develops programmes that demand hard work and challenge from all, but without overwhelming them.
6. **Assessment for learning** – the learning environment operates with clear expectations and uses assessment strategies that align with those expectations; there is a strong emphasis on formative feedback to support learning.
7. **Building horizontal connections** – the learning environment strongly promotes "horizontal connections" between areas of knowledge and subjects, and to the community and broader world.

2. Why do we need Innovative learning Environments?

Innovative learning environments provide a practical and effective space for learning for stakeholders from different fields and sociodemographic backgrounds. Building such environments is therefore a particularly powerful tool to approach complex societal challenges or address interdisciplinary skills gaps in a certain area. The current situation in health and care provision for older adults in the European Union depicts precisely such characteristics.

While the population is becoming older and the demand for care is rising due to the demographic shift, at the same time, the number of caregivers is decreasing. This has a number of implications for the society: the workforce pool is shrinking as the ratio between the number of older people and working population is increasing; more money goes to pensions, whereby the share of taxes decreases; the number of age-related diseases is increasing; due to lack of formal caregivers, the greater share of caregiving responsibility is falling on informal carers (EPTA, 2019).

The situation is even worse in rural and remote regions - young people seek better work opportunities in bigger cities or abroad, which has left the elderly people living alone. In order to revive the regions and to encourage the population to be a part of the labor market and at the same time to guarantee the access to general services for older adults new, innovative and cross-sectoral services are needed. The societal developments therefore pose a learning challenge for society as well as the need to close skills gaps in the provision of care, especially with regards to the implementation of technology based smart care solutions.

Therefore D-CARE action is focused on establishing a transnational cooperation network that will design, test and implement the model of Innovative Learning Environments for older people 55+, in 9 Danube regions, in order to facilitate the creation, validation and deployment of smart care services that will strengthen and integrate regional social and healthcare systems by improving competences and generating innovative smart care models.

Current skills gaps in the Danube area in the area of older adult care

Smart health care is a health service system that uses technology such as wearable devices, IoT, and mobile internet to dynamically access information, connect people, materials and institutions related to healthcare, and then actively manages and responds to medical ecosystem needs in an intelligent manner.

The following main skill gaps in the area of older adult care have been identified in the Danube Region:

2.1. Digital skills for smart care workers

There are four key digital skills areas or domains that a social care worker will need to have skills and knowledge in. These are:

I. managing Information

home care; know how to use a remote monitoring system via a smart phone; home care/day support; know how to update a digital care plan; residential or nursing care; know how to update digital handover records in a skilled way; work with files, folders and other media to access, organise, store, label and retrieve information; follow and demonstrate understanding of the need for safety and security practices; demonstrate how to create, use and maintain secure passwords; demonstrate how to minimise the risk of computer viruses.

II. sharing data

know how to safely share appropriate data; know how to safely use password protection; be able to complete digital records accurately; be able to store information safely; be able to safely use insertable and removable storage devices; read, send and receive email communication

III. using digital skills in direct care

know how to help someone use their diabetes app; know how to help someone with their falls monitor; know how to help someone access services online (such as claiming benefits, paying rent, booking appointments, telemedical services); have the required skills and knowledge to research local activities for a person you support (know how to set up and support a remote medical consultation for a person you support)

IV. learning and development

be able to create a log in and password for a learning account; access mobile learning via a tablet or smart phone; use search techniques to locate and select relevant information; recognise and take account of currency, relevance, bias and copyright when selecting and using information)

2.2. Digital skills for older adults

Digital skills training to enhance digital literacy for all and especially among older persons is therefore a key policy priority as societies advance digitalisation. This can empower older persons to effectively, safely and securely use, and benefit from, the opportunities provided by digital technologies and the Internet. With its Action Plan to implement the European Pillar of Social Rights issued earlier this year, the European Commission has set the ambitious goal that at least 80 percent of the population aged 16-74 should have at least basic digital skills, considered as a precondition for inclusion and participation in the labour market and society in a digitally transformed Europe.

The latest [UNECE Policy Brief on Ageing](#) examines this 'digital divide' between generations and highlights policy priorities for digital inclusion of older persons.

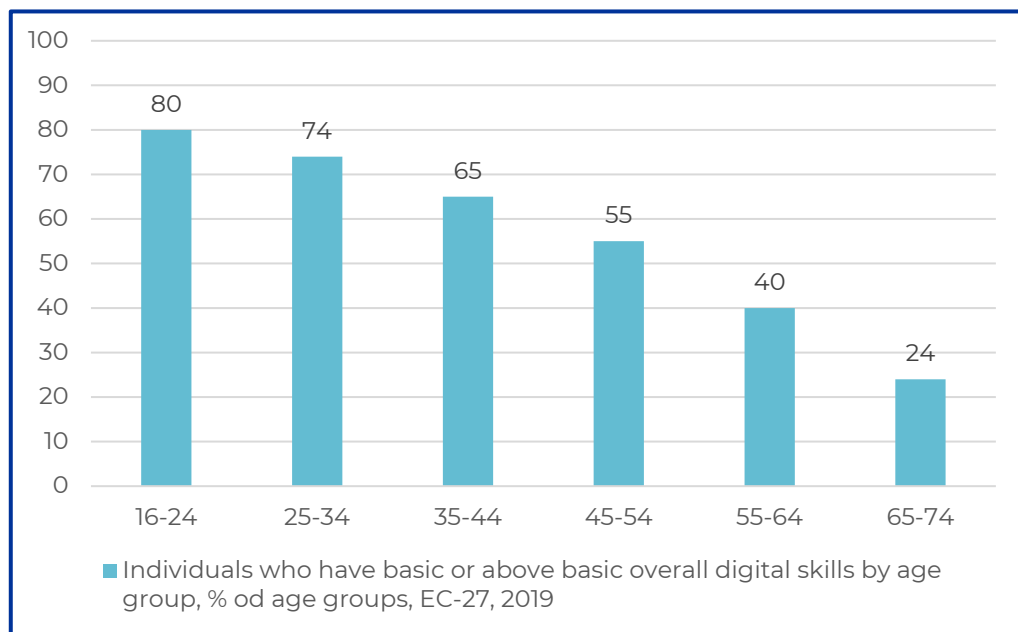


Figure 5: Digital skills divide across generations. Source: Eurostat, isoe_skdskl_i (2021)

Improving digital skills and confidence among older people remains important - particularly for groups who are most likely to be socially excluded, too - those with a low household income, those living in social housing, and those with lower educational attainment.

The key skills that enable people, particularly older people, to stay connected with the world:

- Accessing Information and communication- Using a search engine to look for information, downloading and saving something discovered online; use of e-mail and video-conference app;
- Use of new technologies for healthy and active ageing – reading and accessing information from smart care devices in order to maintain independent living.



2.3. Smart care skills for delivering social and health services

Internet and modern information technology make an important contribution to the process of restructuring and modernizing **public administration** on an electronic basis. The digital transformation offers the opportunity to use public resources more efficiently and more purposefully, to relieve citizens and businesses and to strengthen social cohesion. In order to go through the digital transformation successfully, it is essential to possess the necessary skills, mainly related to:

- Provision and use of Digital services
- Safety and Legal Issues Related to the Use of Technology
- Development and maintenance of digital Infrastructure

Provision and use of Digital services

“Uptake of internet and internet services” means the regular use of internet and e-services by people, enterprises and administration. This indicator is used to estimate how and if the use of internet has become a tool of everyday life.

Safety and Legal Issues Related to the Use of Technology

Due to technological progress, local authorities, business and citizens become increasingly reliant on computer systems for work, education and everyday living. Therefore, the protection of these systems become more important.

Development and maintenance of digital Infrastructure

The existence of various broadband technologies and deployment methods provides great opportunities for a fast and high quality expansion of broadband infrastructure, meeting different local needs occurring from geography and population structure. However, it is important to be able to choose a technology that is best for each region and meets the possible future needs of the end-users.

2.4. How to leverage the potential of digital technologies for healthy ageing

Digitalisation holds significant promise for societies with ageing populations as well as for older persons themselves. Older persons represent a growing market for digital technologies tailored to their needs, ranging from assistive devices, smart living and health monitoring devices, to digital advancements in the health and care sectors that can improve service delivery in the face of growing demand. New business potential is created for providers who find suitable solutions.

The question arises of how these solutions can be identified, conceived, developed, and marketed. Providers can carry out innovation processes in a technology-driven or customer-oriented manner. However, both pathways quickly reach their limits, since finding suitable solutions is usually more successful if ideas, knowledge, and skills that are outside the company's boundaries are integrated. This requires the willingness and ability to co-create solutions with other parties, especially with older adults, with companies, with the public authorities and with researchers. In order to be successfully involved in the co-creation process, the following skills are of utmost importance:

building new relationships: co-creating new products and services provides all involved partners with the opportunity to build new relationships while increasing their engagement in the current co-creation process; networks between stakeholders involved in recurring co-creation processes;

developing new knowledge, by interacting directly and intensely with users and various stakeholders among each other actors gain first-hand insights on each other's positions, needs and challenges.

building new capabilities: better user interaction; how to design a user-centred co-creation process; organisational and individual level capabilities;

developing new/upgrading existing ideas, services, products: ideas, services, products are shared and improved together with stakeholders through collaboration (open innovation)



3. Elements of innovative learning environments

In the most basic explanation of the elements comprised in a learning environment, we will find four distinct categories:

1. Learners
2. Teachers
3. Content
4. Resources/Tools

All these 4 types of elements are bound together by a type of Organization or an environment in which the 4 elements interact. The learning environment therefore contains human as well as non-live elements, digital and analogue ones. It comprises the actors learning and conveying knowledge as well as the tools and methods of how information is passed on.

The following paragraphs present each element category is described in more detail.

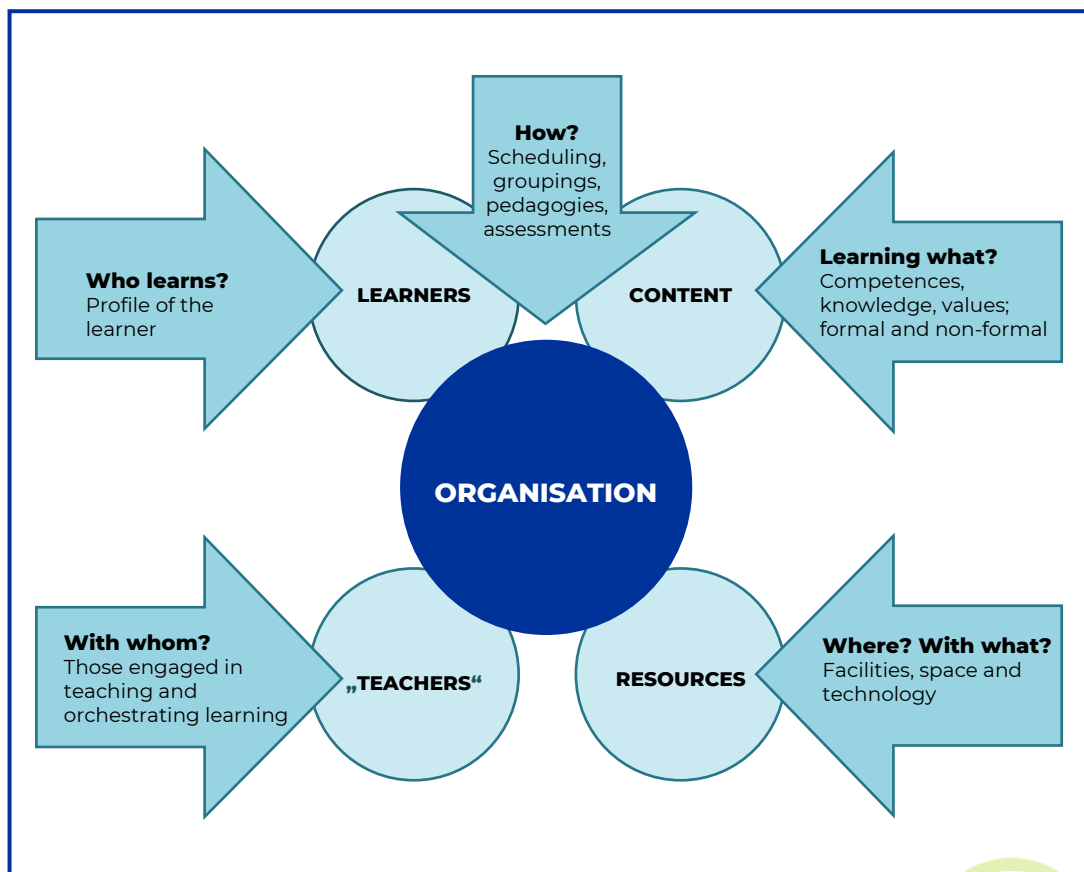


Figure 6: The ILE conceptualization of a "learning environment"

Source: David Istance. Innovative Learning Environments: An international OECD project. https://www.researchgate.net/publication/265998319_Innovative_Learning_Environments_An_international_OECD_project_Mercer

3.1. The Learners



Anybody encountering new pieces of information learns. Thus, all individuals interacting with information provided in and by the learning environment are learners. In the context of health and care, learners might be older adults and their support networks acquiring competences in the use of digital monitoring and communication tools, formal care givers learning on handling telemedical solutions, academics and policy makers on with current health care systems and tools as well as businesses in terms of user needs or characteristics.

They can be individuals, groups of people or companies and institutions. In innovative learning environments the role of a learner can be taken on flexibly by any actor depending on the topic at hand. This means that learners might change their role from learner to teacher/input giver according to their competences, learning interests or input needs of the environment as a whole. The ILE is not only strictly user and need centered in terms of the impersonification of a role but also the timeframe in which actors become part or quit a learning environment. The ILE requires a presence of learners but is not fixed as to those being the same persons over time.

In innovative learning environments some of the learners might even be non-human; AI-based solutions might learn from the data or user habits provided to gain further insights into user profiles in order to – for example – refine the tools with which information is conveyed.

3.2. The Teachers

Likewise as the learners, the role of the teachers is not fixed in an ILE. Thereby, a hierarchical relation between teachers and learners is negated for the benefit of an evolving, need-oriented concept of providing and receiving knowledge. Hence, especially non-institutionalised knowledge is valued as well as actors becoming teachers who do not have this as their main activity. What is important is that the knowledge they provide is relevant for the environment, meaning other learners and that teachers dedicate resources to convey that knowledge as effectively as possible to the learners taking into account their learning needs and characteristics. Again, teachers can be individuals, groups of people or companies and institutions.

Even more so than the learners the teachers in an ILE might be non-human such as apps or robots interacting with the learners based on previously programmed content or AI. While this is surely a development especially older learners have to get used to it bears great potential in the field of smart care responding to the geodemographic challenges of older adults living alone in rural areas as well as the general lack of care givers.

3.3. The Content

In a learning environment what is considered the content consists of a number of different entities: (1) information or knowledge that can be passed on from one actor to another, directly or using a mediating structure such as an online platform. Information or knowledge can therefore appear in various formats, such as speech, text and in analogous or digital forms. (2) competences and practice which are applied capabilities, for example how to deliver home care using a care robot. Rather than a cognitive knowledge of pieces of information they are practical knowledge elements that are acquired, implemented and conveyed to others by practicing them. The method of learning, applying or teaching competences and practices to others can still take place through digital as well as analogous channels. (3) (learning) interactions as such also depict a form of content for the ILE. The interactions between learners and teachers in which the transfer of knowledge, competences or perspectives take place do make up for a large part of the activities happening within the learning environment. (4) Lastly, and slightly more abstract, the values and principles which the ILE is built around also form part of its content. They largely shape the way learning, teaching and interacting is structured in the environment as well as which type of information and knowledge is being taught. For an ILE this would for example include user-centeredness, openness, valuing differences etc.

3.4. The Resources and Tools



For interactions and knowledge transfer to take place enabling tools and structures are needed. For the analogous space this pertains to buildings or physical spaces where the transactions of the ILE can take place as well as means and tools used to convey knowledge and competences; these could for example be handouts, computers and tablets, medical dummies etc. It also includes communication channels such as letter boxes, information boards or flyers. Likewise for digital resources and tools, solutions offer themselves that provide an interaction space in which learning can take place. These might for example be interactive platforms on which different types of learning materials can be uploaded, live sessions can be held and chatting between users is possible. Digital tools to learn and to teach might be memorizing apps, activity courses, digital smart and home care portals and more. The following chapter will give you an oversight over shortlisted ILE tools collected for the D-CARE project.

The choice of resources and tools will mostly be made in a non-centralised, organic way taking their attainability (external constraints such as costs, personnel requirements or expertise requirements) as well as the (learning) characteristics of the actors within the ILE into account.

4. Innovative Learning Environment Tools



Within the D-CARE project several learning tools and applications have been explored. Additional information on demanded characteristics or examples of ILE tools were collected through stakeholder workshops. Selected ILE tools present elements of innovation and are related to learning for the stakeholders involved in smart care of elders.

As a result of the project's research, a database of 38 learning tools has been established which can be followed up on in more detail in the Innovative Learning Environment Toolkit (ILE toolkit):

ILE TOOL #1 – Rescue application, version for seniors

Czech application, which has 1.3 million users on their mobile phone. The ambulance helps when it comes to life endangering situations or other emergencies.

ILE TOOL #2 – Moodle

Freeware for eLearning with a huge availability of tutorials online and interfaces to common database formats for administration.

ILE TOOL #3 – Talent lms

Talent lms is a cloud-based learning management system. It is customized for small and mid-sized business. The platform provides user-friendly content creation and course modelling.

ILE TOOL #4 – Platforms and mobile apps such as: Motify, Ladder, SworkIt, NeoU...

Whether you are one of those who are trying to lose weight, build muscle or increase fitness, thanks to smart technology you can do all of the above from the comfort of your home.

ILE TOOL #5 – Social One-Stop-Shop

The Social One-Stop-Shop combines a place where citizens can personally receive information about social services provided by the Municipality, submit electronic applications for social services, check the status of submitted applications and make use of an option to communicate in real time with users.

ILE TOOL #6 – Smart Care (as a package of services)

Smart care allows seniors the maximum of activities to stay self-sufficient and independent for a long time. It allows support-surveillance 7 days a week and 24 hours a day, it is a quick help when pressing the SOS button, for early detection of falls and health problems, monitoring activities, GPS position monitoring to capture help or a family information portal.

ILE TOOL #7 – Medimonitor

Software application called Medimonitor for acquisition and aggregation of biomedical signals, from medical devices placed within the patient's environment.

ILE TOOL #8 – CedarNet Elderly's Visitor - Training Program

The Elderly's Visito uses the time and experience potential of younger seniors to assist older seniors. Young pensioners have much time, while after finishing work they are losing the feeling of being useful. Also their pension fee is very low and some income is needed.

ILE TOOL #9 – Ginkonet – Dementia Knowledge Bank in Kecskemét

(as part of Demetia Friendly Town Program in Kecskemét, Hungary)

Online and Classroom Training Programs, Informative videos. Main activities of the whole program: spreading Information, Prevention, screening, Support of life with dementia, Training of social experts, Preparation of relatives, volunteers, Sensitization, building local helping communities.



ILE TOOL #10 – Points of power - multigenerational centers in all municipalities of the Primorsko-Notranjska region

Points of power - multigenerational centers are places in the region where older and younger people meet.

ILE TOOL #11 – Improving the lives of older people and communities through education and culture

In the Municipality Ilirska Bistrica, the Slovenian Third Age University has their main campus. They aim to provide older people with permanent access to culture and education for personal growth, better employability and active citizenship and to enable older people to get interpersonal support.

ILE TOOL #12 – Simbioza BTC City Lab

Simbioza Lab, the first living lab in Slovenia, is a hub for smart technologies, solutions, devices and products for older adults.

ILE TOOL #13 – CEZAR center for telehealth (telemedicine) services

CEZAR provides support to patients with long-terms conditions – diabetes type 2 (DM2) and/or heart failure (HF), to better self-manage their disease at home.

ILE TOOL #14 – E-Care / E-Oskrba

Smart system of integrated health care and home care in Slovenia.

ILE TOOL #15 – MAGDA - Mobile phone app for older adults

MAGDA is the first mobile application for older adults, where all important content and information for older adults are gathered in one place.

ILE TOOL #16 – House of Memories (National Museums Liverpool, UK)

House of Memories is a museum-led dementia awareness programme, which offers training, access to resources, and museum-based activities to enable carers to provide person-centered care for people living with dementia.

ILE TOOL #17 – The LebensPhasenHaus

The primary objective of the LPH as an innovation infrastructure is to provide a space for research, testing, demonstration and knowledge transfer. One of the main topics concerns aging or living at home as long as possible with the aid of social and technical innovations.



ILE TOOL #18 – Centre for Collaborative Innovation in Dementia

Through a living lab approach, the Centre aims to generate sustainable solutions to the everyday challenges of living with dementia

ILE TOOL #19 – Rapid Diagnosis

The tool aims at improving access to health care by training specialized staff for activities in coordination and triage

ILE TOOL #20 – OnSinch

Smart and efficient planning in the NGO & volunteers' sector. All-in-one white-labelled tool for project and volunteer management including self-registrations, volunteer portal.

ILE TOOL #21 – Santé24

Telemedicine 24/7 hotline in conjunction with complementary services or devices such as TytoHome.

ILE TOOL #22 – Courses to help raising awareness among professionals

Various e-learning offers/courses for the further training and sensitization of specialised personnel

ILE TOOL #23 – Seniors' representatives

Seniors' representatives are the local contact persons for seniors and their relatives on the subject of care and aging. They represent and express the demands, wishes and needs of the older population to the municipal administrations and politicians.

ILE TOOL #24 – The Hogeweyk® Care Concept and DVA Dementia Village

De Hogeweyk, operated by nursing home Hogewey, is a gated model village in Weesp, Netherlands. It has been designed specifically as a pioneering care facility for older adults with dementia.

ILE TOOL #25 – eRedbook

The eRedbook cloud service supports the standard for the electronic Personal Child Health Record (ePCHR) endorsed by the Royal College of Pediatrics and Child Health. This standard defines the care pathway for a new baby and the data that needs to be collected and shared across care settings.

ILE TOOL #26 – "We do good deeds"

The project "We do good deeds" is a periodically recurring event implemented by students of the study field of Social Policy and Social Work.



ILE TOOL #27 – ZAVA

Zava is an online doctor service and online pharmacy

ILE TOOL #28 – ALMA CARE

ALMA.care is a Health as a Service IT company headquartered in Belgium that focuses on telehealth to empower customers in the healthcare process.

ILE TOOL #29 – BIRDIE

BIRDIE is a holistic care platform providing tailored preventive care for older adults so they can live independently in their own homes.

ILE TOOL #30 – CERA

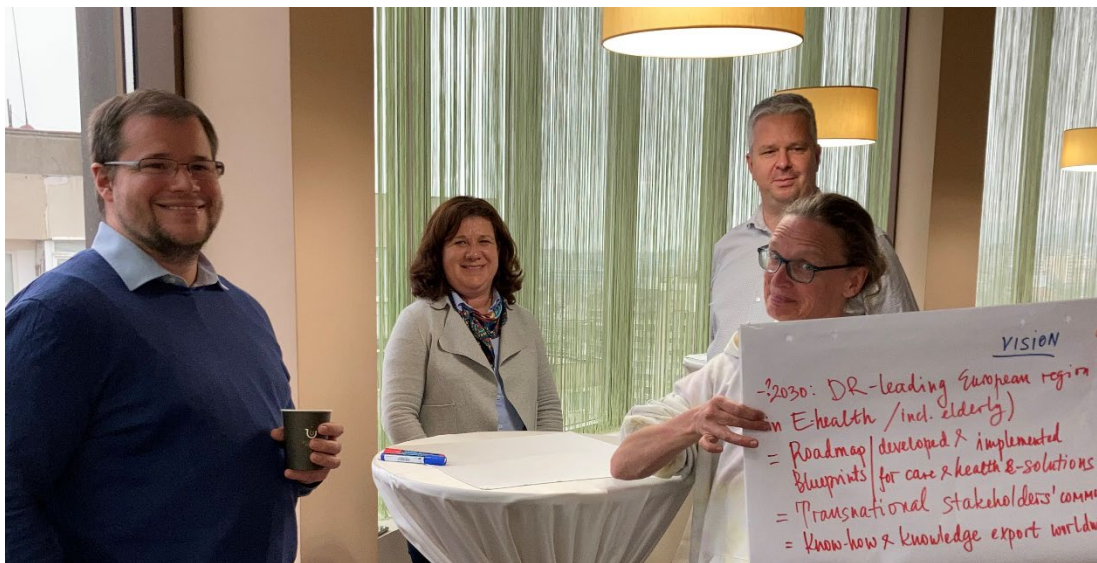
CERA specializes in providing the right care and continued support to the older adults as long as they need it.

ILE TOOL #31 – SAAM - Supporting Active Ageing through Multimodal Coaching - International research project under Horizon programme

The project is about to be fully implemented by the end of the year. Its objective is to develop and validate in a controlled environment.

ILE TOOL #32 – Educational Program. Do it yourself

Way of education and deepening skills, intergenerational links in the online space.



ILE TOOL #33 – VR Vitalis - rehabilitation in Virtual Reality

Virtual reality rehabilitation for patients after injuries, operations and chronic problems.

ILE TOOL #34 – Moudrá sovička (Smart owl)

Education courses for older people: how to use PC/notebook, smart phone, tablet, wearables.

ILE TOOL #35 – Learning@College (UK)

Learning@College is an online portal that contains various programs to maintain key objectives for curricula and internships.

ILE TOOL #36 – eHealth Masters Degree of University of Applied Science - JOANNEUM, Graz, Austria

The eHealth Master's degree programme: challenging, practice-oriented and flexible, with a range of study options and designed to combine work with study.

ILE TOOL #37 – Do not be alone

Way of education and deepening skills, intergenerational links in the online space.

ILE TOOL #38 – – Hospice, Home of Hope: Palliative Care Studies

Hospice engaged in palliative care studies developed and in function in Romania.

5. Checklist for the set-up of innovative learning environments

An Innovative learning environment is designed to support the development of skills and knowledge. In the scope of the D-CARE project, our focus was to establish a transnational cooperation network that will design, test and implement the model of Innovative Learning Environments for elderly people 55+, in 9 Danube regions, in order to facilitate the creation, validation and deployment of smart care services that will strengthen and integrate regional social and healthcare systems by improving competences and generating innovative smart care models. In this chapter, we present the key steps in the process of setting up an ILE, following, where possible, the steps implemented in the D-CARE project.

This checklist aims to give a concise first approach to setting up an ILE but is not comprehensive in its nature.

5.1. Define a learning topic/area

It is important to have a clear idea of the subject around which to set up the ILE before setting it up. In our case, it was about smart care services that will strengthen and integrate regional social and health systems by improving skills and developing innovative smart care models.

5.2. Define learning goals (SMART)

After the topic is defined, we need to set the learning objectives. In education, the acronym-based goal framework SMART is widely used to help learners and teachers set structured goals related to their learning (Drew, 2022).

S	Specific	What do you want to do?
M	Measurable	How will you track your progress?
A	Attainable	How will you do it?
R	Relevant	Is this relevant to your life right now?
T	Time-Bound	When do you want to do it?

Figure 7: SMART goals framework. Source: Canva.

As part of project D-CARE we also conducted research that combined quantitative and qualitative research tools to identify specific needs and learning objectives related to our subject area. As a result, the following needs were identified:

- It is necessary to attract businesses in order to develop new products/services for smart care.
- The price of smart solutions is very high which makes them inaccessible for most people.
- Improving the skills for using digital tools for smart care by smart care workers and older people.
- Ensuring better communication and orientation of the most vulnerable and giving priority to prevention and focusing attention on the psychological health, especially during the pandemic.

5.3. Involve the right stakeholders

The learning content and goals of our ILE are now defined. At this point, we need to define the right stakeholders to involve in the ILE. This can be done using a variety of criteria, such as: based on their needs and relevance to the topic and learning objectives of ILE; according to the intended learning outcomes; based on their abilities and/or power to influence others; based on the specific needs of ILE, etc. (Alexander, 2016).

Identified D-CARE target groups were older adults, older adults with chronic diseases, dementia patients, formal and informal caregivers, unemployed and low-skilled workers. In each project region stakeholders' organizations (at least one) signed a partnership agreement, which will ensure the continuity of the regional cooperation dynamics initiated by the D-CARE project.

5.4. Select fitting tools/develop learning programs

In order to enable most effective learning within the environment, the selection of appropriate learning tools and the design of the learning program(s) should be done paying careful attention to the characteristics and specific needs of the actors in the ILE as well as the context in which it is implemented.

Various learning tools and applications were investigated as part of the D-CARE project. Additional information on required features or examples of ILE tools was gathered in workshops with stakeholders. The selected tools from ILE have innovative elements and are relevant for learning for the stakeholders involved in care for older people. As a result of the project research, a database of 38 learning tools was created (the list can be found in chapter 4). Some of the identified learning tools were incorporated into 24 learning modules developed by the project partners. Of the 24 modules, 6 modules were selected by the partners from each country to be included in the national learning program. This selection was tailored to local learner target groups and priorities in skills and knowledge to be acquired.



5.5. Secure funding and sustainability

It is important to secure funding and sustainability for the ILE after its establishment. Political support or private funders may play a role. For ILEs that are part of a project, sustainability after project funding ends is a particularly important issue.

As in the D-CARE project this might for example be achieved by signing partnership agreements with actors or institutions who have an interest in the ILE and therefore dedicate resources to the forth living of the ILE.

5.6. Test the programmes

Before being implemented, newly designed programmes must be tested and evaluated. In this way, their effectiveness and appropriateness for the intended target groups can be secured. In the case of D-CARE, each project country conducted tests of the selected modules and prepared a testing report. Their results were incorporated into the revision of the training modules.

5.7. Scale up learning programmes and opening the ILE

Once the tests are completed and the learning programmes are improved, they can be implemented. We have reached the point where the learning process can begin. Consistent with the inquiry spiral, learners are invited to engage in a process that addresses real-world, learner-centred challenges and is an ongoing, overlapping, and interconnected process (Halbert and Kaser, 2013).

In D-CARE, the learning modules were further improved based on the test results before they were implemented. After that, the implementation process began.



5.8. Spread the word

When the Innovative Learning Environment is up and running, owners need to make sure the word gets out about the ILE. Stakeholders can play an important role here. In D-CARE, we have used project events to introduce the ILE, publicise it, and invite members of the relevant target groups to participate.

6. Conclusion



The purpose of this publication was to identify and explore the general essence and importance of Innovative Learning Environments (ILE) with country specific focus on the Interreg D-CARE project participants from the Danube region. Beyond serving as an effective structure for skills and knowledge development, ILE provides a digital tool and effective space for learning from different fields and sociodemographic backgrounds. It is user centered, open and evolving according to actors' needs and inputs in its nature. The D-CARE project with its transnational learning environments concentrates on fostering digital skills in the Danube regions and providing an attractive and accessible learning environment for people 55+, their support networks as well as health and care professionals. The research established differences among Danube regions to identify current skill gaps with regards to smart health and care which can be reflected in tailor-made learning and training programmes. Independently of the learning topics of an ILE, it is essential to involve actors from all quadruple helix branches to support the learning environment. Only in this way can relevant topics, effective tools and the appropriate target group(s) be identified. The D-CARE project pointed out 38 ILE tools, including fully digital, hybrid as well as analogue tools. They can serve as a database for further exploration and integration in other innovative learning environments. Innovative Learning Environments present effective frameworks to tackle societal skills gaps resulting from major demographic, social or economic transformations. They hold vast potential not only for health and care but also for questions of a modern education system, climate change or transnational governance. Learning in innovative learning environments ensures that content is relevant, understandable and the enabling learning context is sustainable.

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