
Toward Ubiquitous Learning for Adults: Opportunities Enabled by Artificial Intelligence
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The Two Pillars of Lifelong Learning

Active Citizenship

Lifelong learning is an essential condition for civic participation and social cohesion.

Workforce Adaptability

Continuous upskilling guarantees economic resilience in a constantly evolving market.

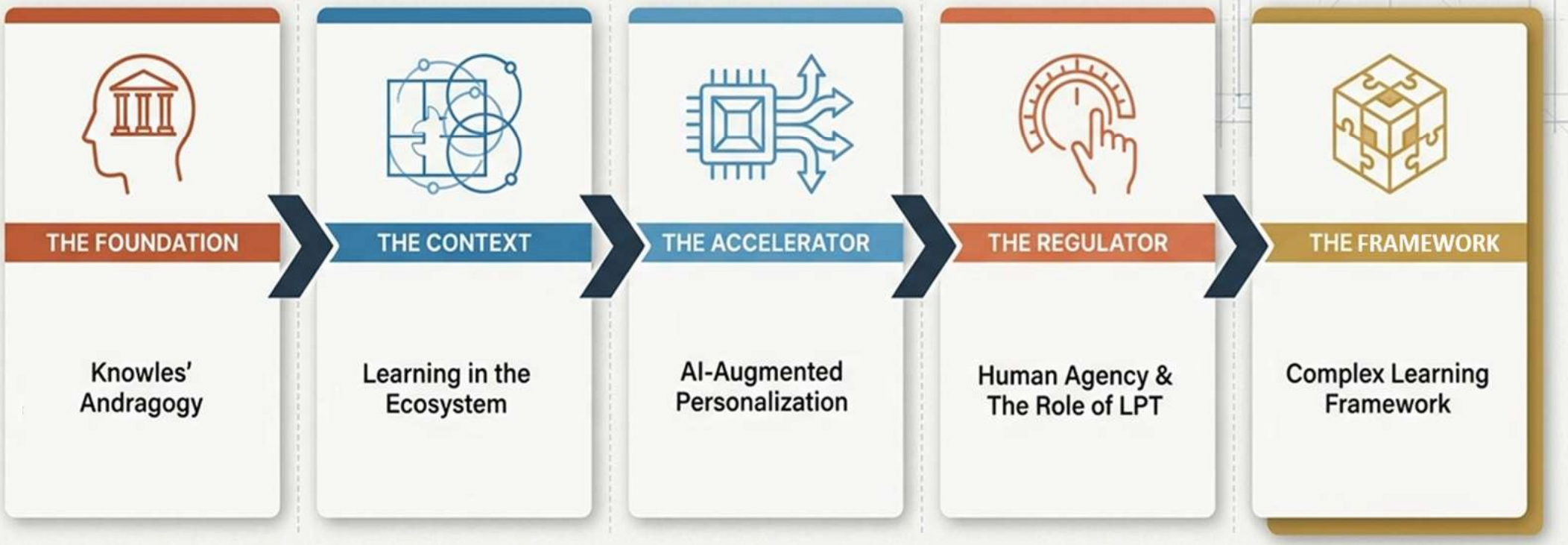
The 2030 Strategic Horizon

SYNTHESIS INSIGHT

Bridging this 20.5% gap is not just a statistical metric; it is the fundamental requirement to unlock active citizenship and workforce adaptability across the European Union.

Accelerating continuous upskilling is the imperative of the decade.

ENGINEERING A UBIQUITOUS AND ENGAGING EXPERIENCE FOR ADULT LEARNERS



Adult Learning Personalization Requirements

1. NEED TO UNDERSTAND

2. PERCEIVE THEMSELVES AS SELF DIRECTED INDIVIDUALS

3. BRING PRIOR EXPERIENCE AS A KEY RESOURCE FOR NEW KNOWLEDGE

5. BECOME READY TO LEARN WHEN FACING REAL LIFE

6. ARE TASK ORIENTED AND PROBLEM CENTRED

7. PRIMARLY MOTIVATED BY INTERNAL FACTORS

Personalization recognizes who adult learners are, what they need, and what drives them—enabling learning that is relevant, engaging, and truly transformative.

IA LEARNING PERSONALIZATION ACCELERATOR

Three ways AI empowers personalized learning
and amplifies human potential

1. PERSONALIZATION:
   A STRUCTURING APPROACH, BUT A COMPLEX CHALLENGE

2. AI-DRIVEN SOLUTIONS:
   SMART, ADAPTIVE, AND LEARNER-CENTERED

3. AI AMPLIFIES HUMAN POTENTIAL,
   IT DOES NOT REPLACE IT

Together, these elements create a powerful synergy

1. PERSONALIZATION: A STRUCTURING APPROACH, BUT A COMPLEX CHALLENGE

Personalization makes learning more **accessible** and **inclusive**.

However, it is time-consuming and resource-intensive.

Extensive data collection and analysis

Learning-style inventories

Prior-learning and competency assessments

It also requires:

Highly skilled trainers able to interpret data to design learner profiles and personalized pathways

The challenge increases when personalization involves groups rather than individuals.

2. AI-DRIVEN SOLUTIONS: SMART, ADAPTIVE, AND LEARNER-CENTERED

AI-driven tutoring applications integrate **flexibility, adaptability** and **learner agency** through dialogic interaction, aligning closely with personalized learning principles.

AI ALGORITHMS ENABLE:

- Customization based on individual needs, preferences and pace
- Generation and dynamic adaptation of study plans (learning contract) within a dialogic framework
- Adaptive task difficulty that calibrates complexity to increasing mastery
- Guidance through positive reinforcement and formative feedback
- Identification of errors from a formative perspective

AI tutoring systems go beyond general-purpose chatbots by incorporating mechanisms for **dynamic study planning** and **adaptive learning**.

3. AI AMPLIFIES HUMAN POTENTIAL, IT DOES NOT REPLACE IT

AI-based personalized learning amplifies **the Zone of Proximal Development (ZPD)** as theorized by **Lev Vygotskij.**

ZONE OF PROXIMAL DEVELOPMENT (ZPD)

WHAT I CAN DO ALONE

Current knowledge and skills

WHAT I CAN DO WITH GUIDANCE

With support and scaffolding I can learn and grow

WHAT I CAN'T DO YET

Beyond my current ability

Unlike human instructors, AI operates without fatigue or impatience, providing **consistent, patient and always-available support.**

AI does not replace human guidance; it **amplifies human potential**, making personalized learning more effective, scalable and impactful for **every learner.**

“rear-view mirror syndrome”

AI-based learning support applications tend to configure themselves as **self-contained systems**

These conditions reproduce albeit in renewed forms the

traditional perimeter of classroom,

That is the space institutionally designated for learning

> It is time to look beyond the rear-view mirror: technology should **expand horizons**, not reinforce old boundaries.

KNOWLEDGE CONSTRUCTION

Learning as a cyclical and dialogic process

KNOWLEDGE CONSTRUCTION HAPPENS THROUGH...

CONCRETE, AUTHENTIC AND SITUATED EXPERIENCES
Learning is grounded in real-world contexts that are relevant and meaningful.

DIALOGIC PROCESSES
Meaning is co-created through conversation and exchange.

COLLABORATIVE PROCESSES
Together we build, challenge and refine ideas.

EXPERIENCE IN CONTEXT

1 SELF-REFLECTION
I pause and reflect on my experience.

2 INTERPRETATION
I make sense of what happened and its meaning.

3 DIALOGUE & COLLABORATION
I discuss and exchange ideas with others to broaden perspectives.

4 REINTERPRETATION
I reframe my understanding based on new insights and feedback.

5 NEW UNDERSTANDING & APPLICATION
I apply and integrate my learning in new situations.

NEW KNOWLEDGE & DEEPER AWARENESS

LEARNING IS ITERATIVE AND RECURSIVE

Through authentic experiences and collaborative dialogue, we reflect, reinterpret and iterate, creating new knowledge and deeper awareness in an ongoing cycle of learning.

UBIQUITOUS LEARNING ECOSYSTEM

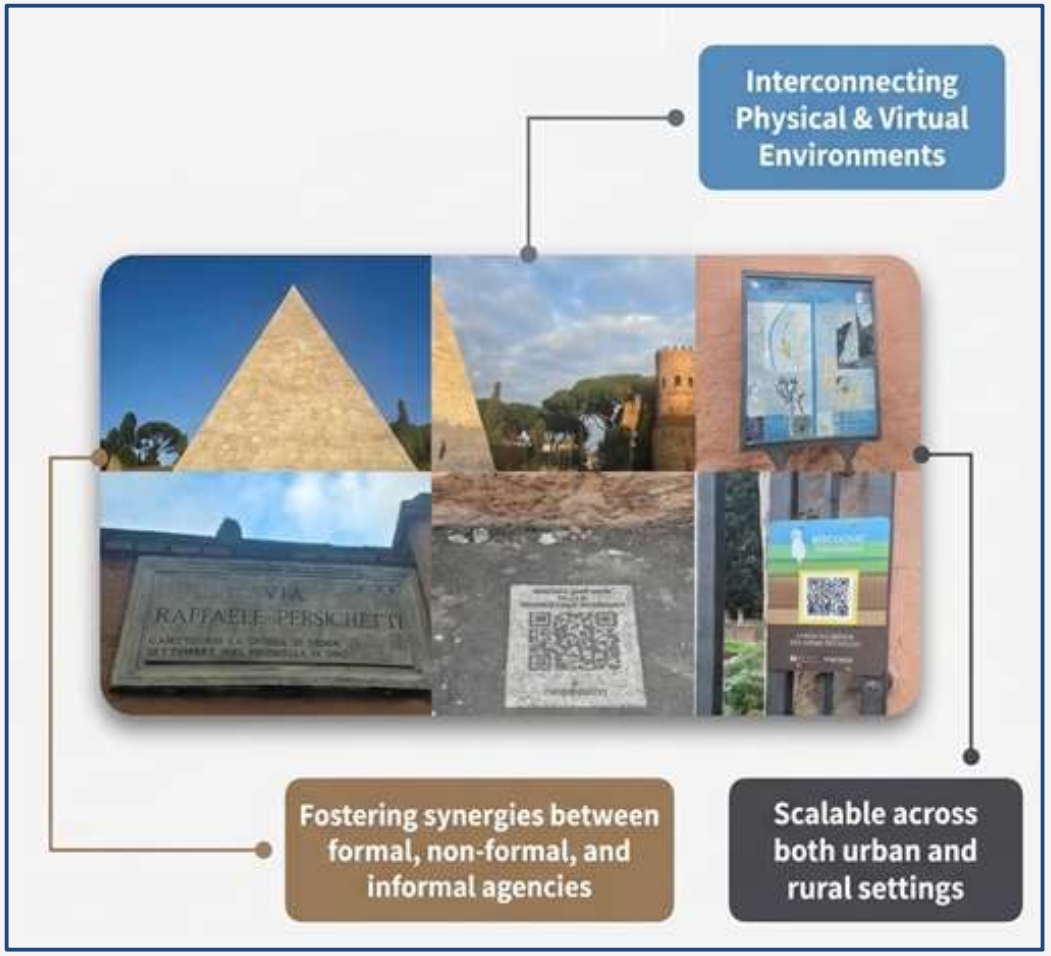
Need to **overcome fixed roles identities and dynamicsof learning standards** to meet the fluid ever-changing becoming of adultlearners' lives

Activating the Everyday

Learning pathways are no longer confinedto traditional institution

The Ubiquitous Ecosystem

Turn the entire city into a open interactive classroom adopting the widespread museum as a model



Breaking the Fourth Wall.

Everyday contexts

Supermarkets, theatres, libraries, bookstores, fast-food restaurants and leisure spaces.

Interactive access

Embedded in touch displays at bus stops, self-service kiosks and other interactive interfaces.

Connected network

Interconnected nodes within a hybrid, dynamic and reconfigurable network.

Supermarkets | Theatres | Libraries | Bookstores | Fast-food restaurants | Leisure spaces

LEARNING ACTIVATION NODE

AI-AUGMENTED AND ADAPTIVE PERSONALISED LEARNING PATHWAY

AI

LPT

DISTINCTIVE FEATURES OF ADULT LEARNERS

- **KNOWLEDGE DIALOGUE**
  - Who is the learner
  - Their prior knowledge
  - Their experiences
  - Their learning style
- **NEEDS ANALYSIS**
  - What is the learner looking for
  - What type of course, where, for how long, at what level, and with which strategies
- **INFORMATION**
  - Learning opportunities and resources
- **PERSONALISED PATHWAY**
  - Co-designed with learning challenges and co-planned curriculum

LIFELONG LEARNING SYSTEM

- MUSEUM COURSE
- NATURE PATHWAYS
- COURSE B
- COURSE A
- AND MORE
- UNIVERSITY
- TRAINING CAMPUS
- SPORTS PROGRAMS
- SOCIAL NETWORKS
- SECOND-CHANCE SCHOOLS

A HYBRID, DYNAMIC AND RECONFIGURABLE NETWORK OF LEARNING OPPORTUNITIES
Connecting everyday places and intentional spaces to empower lifelong learning.

Learning Personalization Trainer

LPT

The human agent promoting personalization not merely as an activation of a mechanical process

Design their own life trajectories and learning pathways → Become co-authors and conscious planners of their development → Acquire metacognitive competencies → Achieve autonomous management of learning

KEY ROLES OF THE LEARNING PERSONALIZATION TRAINER

- Builds meaningful relationships
- Guides and motivates learners
- Creates supportive learning conditions
- Enhances competencies and self-efficacy
- Fosters reflection and metacognitive growth

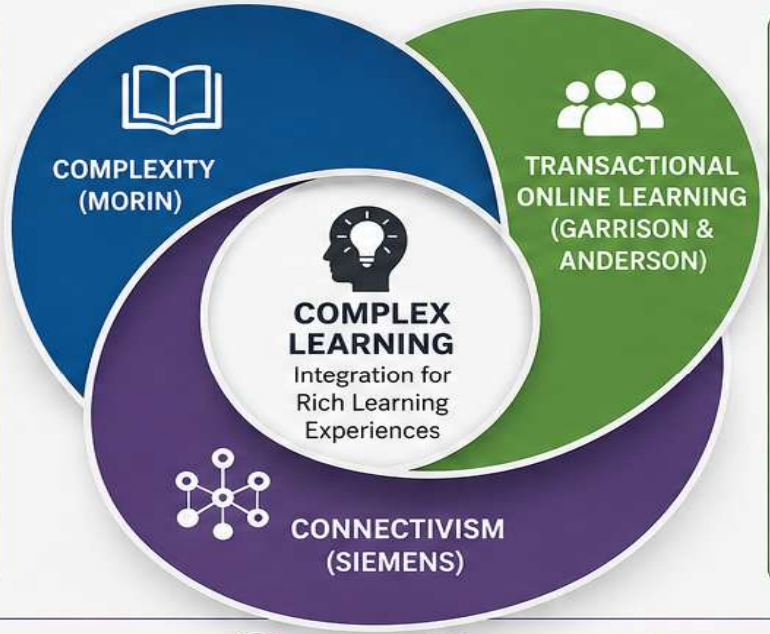
COMPLEX LEARNING

A THEORETICAL PEDAGOGIC PARADIGM THAT INTEGRATES SEVERAL COMPLEMENTARY APPROACHES

1. PARADIGM OF COMPLEXITY

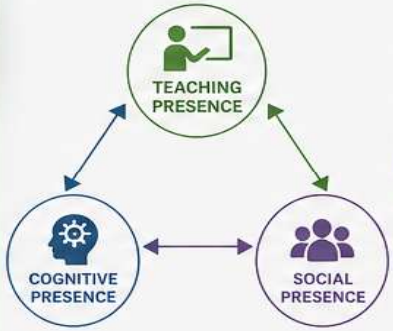
EDGAR MORIN

Emphasizes the dynamic interplay between **order**, **disorder** and **organization** in complex systems.



2. TRANSACTIONAL PERSPECTIVE ON ONLINE LEARNING ENVIRONMENTS

GARRISON & ANDERSON



Learning emerges through the dynamic transaction and interaction between **teaching presence**, **social presence** and **cognitive presence**.

3. CONNECTIVIST APPROACH TO LEARNING

SIEMENS

Knowledge is distributed across networks of **people**, **technologies** and **information sources**.

Complex Learning integrates these complementary perspectives to foster adaptability, meaningful connections and lifelong learning in a complex, interconnected world.

TOWARDS A DISTRIBUTED AI LEARNING ECOSYSTEM
ELEMENTS OF A PROTOTYPE

TRANSFORMING ITS ACADEMY FRAMEWORK

into a

PERSONALISED URBAN AI AUGMENTED EDUTECH DISTRICT

ITS ACADEMY ITALY

KEY ELEMENTS

Law No. 99 of 15 July 2022 – Higher Technological Education System

POST-DIPLOMA HIGHER EDUCATION AND TRAINING PATHWAYS

Duration: 2 years
(1,800 – 2,000 hours)

Awarded qualification:
Higher Technician Diploma (EQF 5)

Technological areas:
Sustainable mobility, Mechatronics, ICT, Energy, Home systems, Agri-food system, Fashion system, Services to businesses, etc.

INTEGRATION OF INTERNSHIPS AND APPRENTICESHIPS

EXPERIENCE IN COMPANIES — INTEGRATED LEARNING — TRAINING IN CLASSROOMS AND LABS

HIGH-LEVEL COMPETENCES · INNOVATION · EMPLOYABILITY · TERRITORIAL DEVELOPMENT

PURPOSE

To train highly qualified technicans in line with the needs of businesses and to foster innovation and the competitiveness of the country.

GOVERNANCE

Paritary participation of members ensures balanced representation and sound governance of the Foundation.

ITS Academies build the bridge between education, research, businesses and territories to develop skills for the future.

To forge the primary tool: the mind

The primary technology is the human mind itself,

in line with the educational vision of **John Dewey** and even earlier, **Aristide Gabelli**, who advocated the cultivation of the mind as the primary tool: the

instrument of thinking.

EDUCATION FOCUSED ON THE MIND BUILDS:

- Deep and lasting learning
- Critical thinking and responsible judgment
- Autonomy and self-directed learning
- Personal growth and identity development
- Active citizenship and contribution to society

THANKS FOR YOUR ATTENTION

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