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REINVENTING UNIVERSITY.

THE DIGITAL CHALLENGE IN HIGHER EDUCATION

Edited by

Stefania Capogna, Ligita Šimanskienė, Erika Župerkienė

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INDICE

EDITORIAL
Stefania Capogna, Ligita Šimanskienė, and Erika Župerkienė 13

RUBRICA EDUCATION 19

1. University teachers' data literacy for pedagogical decision making
Aleksandra Batuchina and Julija Melnikova 21

RUBRICA EMPOWERMENT 35

1. Digital pharmacology
Gianluca Della Puppa 37

SAGGI 45

1. Digital innovations as the basis for the implementation of the Concept for the development of T-shaped skills in higher education
Halyna Mishenina, Ligita Šimanskienė, and Erika Župerkienė 47

2. The Shifting Paradigm of "Onlife Learning" in European Higher Education Institutes (HEIs): A Case of Working-Life Competence Development Best Practices
Paresh Rathod and Pasi Kämppi 91

3. Self-assessment in vet and higher education: links and further developments
Laura Evangelista and Concetta Fonzo 121

4. Evaluation of Universities QoS using Fuzzy Cognitive Maps
Panagiotis Perivolaris and Vassilis Stylianakis 155

5. The impact of digitalisation in scientific research: risks, opportunities and ethical challenges
Maria Chiara De Angelis 195

MISCELLANEA 227

1. Modernity and Identity processes on the light of the diffusion of new digital technologies
Giuliana Parente 229

2. L'impatto della pandemia sui comportamenti a rischio dei giovani: le challenge rischiose
Patrizio Pastore e Gerarda Grippo 259

3. Le "destinazioni educative" della Generazione X: risultati e disuguaglianze in una prospettiva generazionale
Orazio Giancola e Matteo Bonanni 289

APPROFONDIMENTI 325

1. Guidelines and Recommendations for Academic Bodies within the Framework of the Erasmus+ Project ECOLHE
Luca Torchia 327

2. Nuove competenze e loro certificazione: sviluppi in Europa e in Italia
Fulvio Oscar Benussi 333

RECENSIONI 341

Recensione del manuale *Understanding Organizational Culture*
Francesca Greco 343

2. THE SHIFTING PARADIGM OF "ONLIFE LEARNING" IN EUROPEAN HIGHER EDUCATION INSTITUTES (HEIS): A CASE OF WORKING-LIFE COMPETENCE DEVELOPMENT BEST PRACTICES[1]

by Paresh Rathod[*] and Pasi Kämppi[**]

Abstract: *The digital transformations bring opportunities and challenges in modern societies, especially profound impact on the European higher education institutes (HEIs). Digital technologies and online learning are becoming increasingly common after the recent COVID-19 phenomenon. The continued digital technologies adoption in human lives has led to the emergence of a new approach to learning called "onlife learning." "Onlife learning" emphasises the integration of formal and informal learning, using technology for lifelong learning, and the need for new skills and competencies. In HE, "onlife learning" is becoming more prevalent, however, there is no one-size-fits-all approach to training and skills development. The key competencies for "onlife learning" include digital literacy, critical thinking, and self-directed learning. These competencies can be developed through various approaches, including experiential learning, blended learning, problem solutions and online learning. The technologies play an important role in "onlife learning". It is essential to support learners in developing their digital skills. This includes providing access and usage training to appropriate technologies, which is especially important to create opportunities for learners to practice their digital skills.*

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The paper provides valuable insights into the best practices for training and skills development in "onlife learning" in European HEIs. The findings are the outcomes of the EU Innovation project ECOLHE. They can be used to inform the design of effective working-life training, skills and competencies development that support learners in developing the competencies they need to succeed in a rapidly changing digital world.

Keywords*:* Digital transformation, Onlife learning, Higher education digitalisation, Digital skill development, Technology in education, Digital pedagogy.

Abstract: *Le trasformazioni digitali portano opportunità e sfide nelle società moderne, con un impatto particolarmente profondo sugli istituti di istruzione superiore europei (IIS). Le tecnologie digitali e l'apprendimento online stanno diventando sempre più comuni dopo il recente fenomeno COVID-19. La continua adozione delle tecnologie digitali nelle vite umane ha determinato l'emergere di un nuovo approccio all'apprendimento chiamato "onlife learning". L'apprendimento onlife pone l'accento sull'integrazione dell'apprendimento formale e informale, sull'uso della tecnologia per l'apprendimento continuo e sulla necessità di nuove abilità e competenze. Nell'istruzione superiore, l'onlife learning sta diventando sempre più diffuso, tuttavia non esiste un approccio unico alla formazione e allo sviluppo delle competenze. Le competenze chiave richieste per l'apprendimento onlife includono l'alfabetizzazione digitale, il pensiero critico e l'apprendimento autonomo. Queste competenze possono essere sviluppate attraverso una varietà di approcci, tra cui l'apprendimento esperienziale, l'apprendimento misto, la risoluzione di problemi e l'apprendimento online. Le tecnologie svolgono un ruolo importante nell'apprendimento onlife. È essenziale sostenere gli studenti nello sviluppo delle loro competenze digitali. Ciò include la fornitura di un accesso e di una formazione all'uso delle tecnologie appropriate, e soprattutto la creazione di opportunità per gli studenti di mettere in pratica le loro competenze digitali. Il paper fornisce indicazioni preziose sulle migliori pratiche per la formazione e lo sviluppo delle competenze nell'onlife learning negli IIS europei. I risultati sono il frutto del progetto di*

Innovazione Europea ECOLHE[2] e possono essere utilizzati per progettare una formazione efficace per la vita lavorativa, e per lo sviluppo di abilità e competenze che supportino gli studenti nello sviluppo delle competenze necessarie per avere successo in un mondo digitale in rapida evoluzione.

Parole chiave: Trasformazione digitale, Onlife learning, Digitalizzazione dell'istruzione superiore, Sviluppo delle competenze digitali, Tecnologia nell'istruzione, Pedagogia digitale.

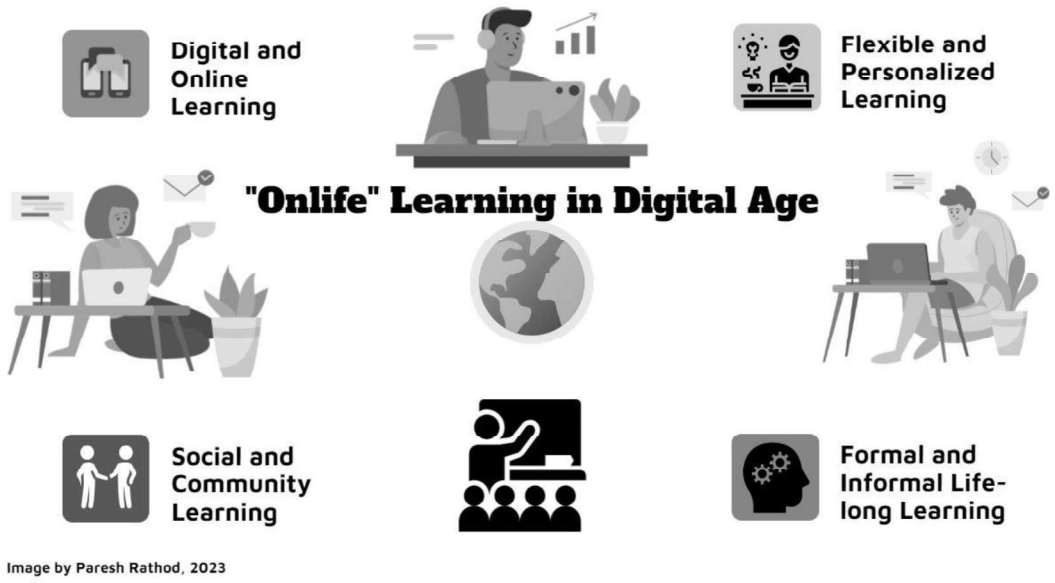
1. Introduction and background

The digital revolution is transforming every aspect of our lives. The rapid pace of technological change and the increasing complexity of the global economy are placing new demands on higher education institutions (HEIs as they prepare students for the demands of the 21st-century workforce. In the ever-evolving landscape of higher education, the surge in technological advancements and the intricacies of the global economy are ushering in new demands on educational institutions. The "Onlife Manifesto - Being Human in a Hyperconnected Era" by Luciano Floridi (2015) underlines the profound impact of hyperconnected technologies on human lives, work dynamics, and communal interactions. This digital transformation has prompted a shift from conventional teaching methodologies to innovative pedagogical practices, integrating real-world experiences and collaborations with industries, as argued by many online pedagogy experts, including EU scholars Stefania Capogna *et al.* (2021), Paresh Rathod and Pasi Kämppi (2021).

[2] Official website: https://ecolhe.eu/.

The term “onlife,” introduced by Luciano Floridi, encapsulates the idea that digital technologies have become inseparable from our offline existence. We exist in a realm where constant connectivity to the internet is the norm, integrating digital devices into every facet of our lives, be it communication, entertainment, or work. Onlife learning signifies a more comprehensive and integrated approach to education, recognising that learning encompasses knowledge acquisition, skill development, understanding, and wisdom. It emphasises the social aspect of learning, acknowledging that interactions with others foster the most effective learning processes. To future-proof education, HEIs need to adopt new pedagogical approaches that focus on developing students’ working-life competencies for the digital era. Onlife learning, supported by digital pedagogy, offers a promising approach to achieving this goal.

Figure 1: “Onlife” Learning in Digital Age[3]



[3] Floridi, L. (2015). The onlife manifesto: Being human in a hyperconnected era (p. 264). Springer Nature.

Analysis and Risks: The works by Luciano Floridi, Stefania Capogna, Paresh Rathod, Pasi Kämppi, and others, provide a comprehensive view of the transformative impact of digital technologies on education and the workforce. They stress the urgency for educational institutions to adapt to these changes by aligning curricula with the demands of the modern workplace. The emphasis on pedagogical approaches that blend theory with practical experiences and promote collaboration with industry partners reflects the current shift in educational paradigms towards more practical, real-world applications.

Absalom Ezugwu, Paulinus O. Ofem, and Paresh Rathod (2016) argued critical aspect while advocating for the benefits of onlife learning and integrating digital pedagogy in education, certain risks and challenges need to be considered. The seamless integration of technology in learning might inadvertently widen the digital divide, disadvantaging certain socio-economic groups. Additionally, the scientific work of Alison Clark-Wilson *et al.* (2020) confirms that the excessive reliance on digital tools might hinder critical thinking and creativity. Furthermore, the literature underscores the necessity for educators and institutions to adopt a more student-centric approach, enabling learners to take charge of their education. While this is commendable, it also requires a paradigm shift in teaching methodologies, potentially meeting resistance from traditional educational systems and instructors.

Overall, many research findings support adopting onlife learning and digital pedagogy; it is crucial to address the potential risks, ensuring inclusivity, critical thinking, and adaptability within the education system. The approach advocated by Cosmina Leila Voinea and Nadine Roijakkers (2023) is particularly noteworthy, as it emphasises the necessity of future-proofing education systems through an onlife approach to working-life competence development. The collaborative learning approaches

and symbiotic learning endorsed by Monteiro & Leite (2021) also accentuate the importance of adapting pedagogical methods for the digital era.

This paper recognises the need to integrate onlife learning and digital pedagogy to foster the growth of future generations in the educational landscape (Capogna *et al.*, 2021). To equip students for the challenges of the modern workplace, European Higher Education Institutions (HEIs) must adopt novel pedagogical approaches that emphasise developing skills relevant to the digital era (Rathod and Kämppi, 2021). This paper explores the necessity of aligning pedagogy, education development, and specific curriculum design with the evolving needs of the workforce, highlighting the pivotal role of Laurea University of Applied Sciences (Finland) in leading this educational revolution (Jassim, 2022). It examines pedagogical best practices, such as designing interactive online courses that combine theoretical knowledge with practical experiences and fostering cooperative learning with industry partners (Clark-Wilson *et al.*, 2020; Ezugwu, Ofem, and Rathod, 2016). The paper assesses the implications and advantages of onlife competence development in addressing workforce demands, future-proofing educational offerings, and enhancing workforce capacity (Vuorikari, Kluzer, and Punie, 2022; Punie *et al.*, 2017). The paper begins by providing a brief overview of the digital transformation of HEIs. It then discusses the gap between the demands of working life and the skills and competencies of graduates. The paper then outlines a vision for future-proofing the education system through an onlife approach to working-life competence development (Voinea and Roijakkers, 2023). Finally, the paper discusses the implications and benefits of this approach.

2. *Methodology and research questions*

This paper follows the scientific method derived from the parent European Innovation project titled "ECOLHE". The methodology employed by the ECOLHE project (Capogna *et al.*, 2021) is comprehensive and multifaceted, aiming to understand the translation of European policies into national policies within the Higher Education (HE) sector. This methodology is designed to yield insights for policymakers, decision-makers, and academic bodies seeking to establish an E-learning Higher Education Area based on teacher professionalisation and E-learning quality assurance standards by 2030. This study uses a multi-case design to explore how transnational digital transformation concepts are adapted nationally. It has two main research focuses:

- *Macro-level analysis:* This involves a literature review and in-depth interviews with key institutional actors. It aims to understand the evolution of digital transformation and national policies related to educational paradigms, digital strategies, and quality assurance initiatives.
- *Meso-level analysis:* This uses a mixed-methods approach to collect qualitative and quantitative survey data from six universities in Italy, Spain, Greece, Ireland, and Finland. It focuses on these universities' approaches to address digital challenges in various contexts.

The case study method is essential for exploring diverse and unique phenomena with minimal researcher influence, enabling a more detailed description and analysis of specific situations. This study applies this method across universities to identify strengths, weaknesses, opportunities, and threats (SWOT analysis) and elements for transferability, improvement, and development. The data collection plan encompasses organisational, educational, and

cultural domains based on a Digital Maturity Framework for Higher Education Institutions (HEIs), synthesising existing frameworks and models related to integrating digital technologies in HE. In addition, in-depth interviews, focus groups, and an online survey will be used to gather data from policymakers, academic bodies, professors, researchers, administrative staff, and students. The qualitative and quantitative data collected have been used to elucidate the impact and challenges of digital innovation and its translation into local practices within the European Higher Education Area (EHEA). The methodology emphasises qualitative and quantitative viewpoints, with analyses performed on the collected data through thematic analysis, ensuring a uniform research protocol. This is essential for generating comparable and effective case studies that inform and support educational practices. Additionally, the methodology thoroughly analyses various perspectives related to pedagogical issues, aiming to draw insights from the complex social phenomena encountered. Overall, the ECOLHE project's methodological framework, encompassing a diverse range of data collection methods and analyses, aims to provide a robust understanding of the challenges and transformations introduced by digital innovation in the higher education landscape. The intent is to generate valuable insights that inform policy and practice improvements across European HEIs. The paper presents the case study of the best practices that address the research questions, including (1) how can educational institutions balance the benefits of onlife learning and digital pedagogy with the risks of digital inequality and critical thinking decline? (2) How can educational systems ensure equitable and adaptable implementation of onlife learning for working-life competence, and (3) how can educators navigate resistance from traditional teaching systems in this shift to student-centred learning?

3. *The Digital Transformation of Higher Education Institutions in Europe: The Current State of the Art (SOTA) and Beyond the Current State of the Art (BSOTA)*

The digital transformation of higher education institutions is a global phenomenon driven by several factors, including the increasing availability of online learning resources, the growing demand for lifelong learning, and the need to prepare students for the challenges of working life in the 21st century (Garrison, 2017). For example, digital transformation is a major force reshaping higher education institutions (HEIs) in the European Union (EU).

The European Union (EUA, 2021; EC, 2020a; EC, 2020b) responded relatively well to the digital age by adopting new technologies and teaching methods as a process of the digital transformation of HEIs. The digital transformation of higher education institutions presents many challenges, including but not limited to: (1) Major investment needs in new technologies, especially digital technologies, which can be expensive to purchase and maintain. (2) To train staff on new technologies, the staff especially needs to be trained on how to use new technologies effectively in teaching and research. (3) There is a need to ensure students have access to digital technologies. Not all students have access to the same level of digital technology. (4) The need to develop new curricula, programmes, and teaching-pedagogical methods (Anderson, 2020; Monteiro & Leite, 2021). Digital technologies can create new and innovative teaching pedagogy methods within the market-demanded degree programmes.

The Role of the Onlife Learning. Onlife Learning emphasises the importance of lifelong learning and the integration of digital technologies into the learning process. Onlife learning argues that learning is not limited to the traditional classroom settings with scheduled fixed times. Still, learning can be supported and leverage

the technologies with the freedom of time and place. The phenomenon demands the digital transformation of higher education to leverage the maximum benefits of the current reality and development.

The Future of Digital Transformation in Higher Education. The digital transformation of higher education institutions can also bring several benefits, including but not limited to only the benefits discussed in this section. The digital transformation of higher education is an ongoing process. Higher education institutions must continue to adapt and innovate as new technologies emerge. The future of higher education will be increasingly digital, and institutions that can embrace the digital transformation will be better positioned to succeed. The digital transformation of higher education institutions has several implications for pedagogy. Traditional teacher-centred pedagogy is no longer sufficient in the digital age (Bates, 2015). Students need to be actively engaged in the learning process and be able to access information and resources from a variety of sources. Modern online pedagogical approaches, such as blended and collaborative learning, can help achieve this.

The Role of the Digital Pedagogy. As we understood from the above section, digital pedagogy uses digital technologies and tools to support learning and teaching. Following are the key aspects of digital pedagogy (Rathod & Kämppi, 2021; Siemens, 2005; Bates, 2015): Active learning, Personalisation, Flipped-classroom, Blending learning, Fully online or distance learning, Collaboration, Accessibility, and Assessment.

Symbiotic Learning and Teaching Processes in the Digital Transformation. Symbiotic learning and teaching processes play a vital role in the digital transformation of European higher education. Symbiotic learning is a pedagogical approach that combines the strengths of traditional teaching methods with the power of digital

technologies to create a more engaging and effective learning experience.

Anderson and Dron (2011) argue that symbiotic learning is not simply about replacing traditional teaching methods with technology; rather, it is about using technology to enhance and support teaching and learning in ways that were not previously possible. For example, digital technologies can create interactive learning materials, provide students with access to global learning resources, and facilitate collaboration between students and educators. Mayer (2014) argues that the effective implementation of digital pedagogy and symbiosis learning methods can significantly improve the quality of learning and teaching in the European Higher Education Area (EHEA). He points to several studies that have shown that symbiotic learning can lead to improved student engagement, academic achievement, and critical thinking skills. Further, it is also essential to consider the potential pitfalls of excessive reliance on digital tools. An overemphasis on technology might inadvertently dilute the personal and interactive aspects of education, potentially hindering deeper conceptual understanding and critical thinking.

George Siemens and Peter Tittenberger (2009) argue that the digital transformation of higher education in Europe is being driven by some factors, including the increasing demand for lifelong learning, the rise of digital technologies, and the need to prepare students for the challenges of the 21st-century workforce. They suggest that onlife learning can play a key role in this transformation by providing students with the skills and knowledge they need to succeed in a rapidly changing world. the proposed solution of onlife learning demands more clarity and evidence-based support. While acknowledging the significance of technology in education, it is crucial to balance the digital realm with the fundamental values of social interaction, critical thinking, and

depth of understanding. An overreliance on digital learning environments might inadvertently compromise the essential social and cognitive facets of learning.

In essence, while symbiotic learning and onlife learning present a valuable direction for educational transformation, there is a need for a more nuanced and balanced approach. An optimal approach should amalgamate the benefits of technology with the enduring values of traditional education, ensuring a balanced, comprehensive learning experience. Deepening the analysis by addressing potential drawbacks and exploring the multifaceted nature of learning dynamics can fortify the efficacy and relevance of these approaches within the evolving landscape of higher education.

4. Case: Future-Proofing the Education System in Finland with Vision 2030

Finland has long been a leader in education, ranking at the top of international assessments. The Finnish government's Vision 2030 for education focuses on future-proofing the system to meet the challenges of a rapidly changing world. One of the key aspects of Vision 2030 is the development of working-life competencies, which are the skills and knowledge that students need to succeed in the workforce. These competencies include critical thinking, problem-solving, creativity, and collaboration.

Onlife learning is a promising approach to developing working-life competencies. Onlife learning is a holistic approach to learning that recognises the pervasiveness of digital technologies in our lives. It emphasises the development of skills, understanding, wisdom, and knowledge. It also recognises that learning is a social process and that we learn best by interacting with others.

Laurea University of Applied Sciences (Laurea) is a Finnish HEI that is reshaping its vision for the future by leveraging the advantages of digital transformation with a new pedagogical practice model and onlife approaches to working-life competence development. Laurea is adopting modern online pedagogical approaches and renewed student development processes, including blended learning, collaborative learning, and learning by developing (LbD) practice model (Garrison, 2017; Bates, 2015). Onlife learning and digital pedagogy offer a promising approach to future-proofing the education system and developing working-life competencies.

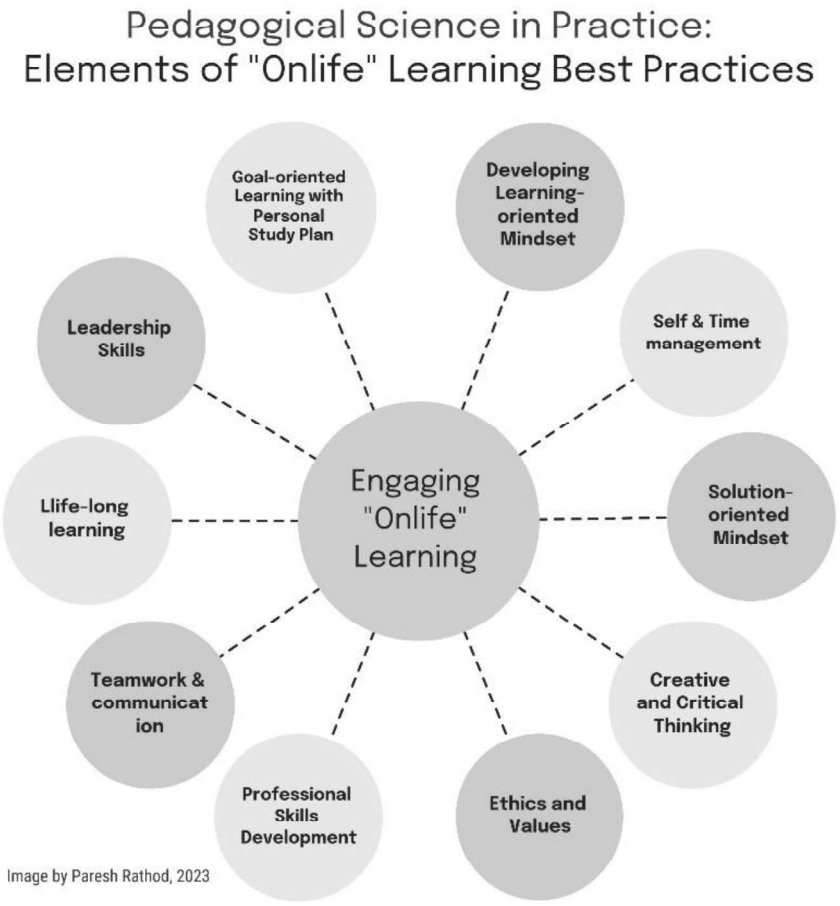
The paper presents the best practices for working-life competence development from the case study of the Laurea University of Applied Science's Business Information Technology (BIT) degree programme as described in the following sections.

5. Pedagogical Science in Practice

In the evolving landscape of education, amalgamating diverse pedagogical elements is vital for effective practice. Researchers during a case implementation studied various pedagogical science components illustrated in Figure 2. Notably, these encompassed distinct learning methodologies crucial for comprehensive student development and future workforce readiness. For example, self-directed learning allows learners to set their own educational goals and construct a learning plan, signifying responsibility for their learning journey (Zimmerman, 2002). Moreover, the fusion of constructivism and collaborative learning nurtures an active learning-oriented mindset where students construct knowledge through engagement with educational content and work collectively to achieve common objectives (Vygotsky, 1978).

Furthermore, problem-based learning endorses a solution-oriented approach, fostering creativity and critical thinking, enabling idea generation and critical evaluation (Treffinger, 2000). Emphasis on values-based education, competency-based learning, and leadership development stresses the significance of ethical values, skill demonstration, and leadership skills essential for effective management and leadership roles (Bass, 1990; Kohlberg, 1984). These multifaceted educational approaches aim to cultivate independent, adaptable, and critically aware learners, equipped for the dynamic demands of the ever-evolving educational and professional realms.

Figure 2: "Onlife" Learning Best Practices



6. *Implementing the Onlife Learning Best Practices*

Our study underscores the significance of implementing best practices in onlife learning to foster working-life competence development. These include designing engaging online courses, incorporating human-development approaches, blending theory with practical experiences, and promoting collaborative learning and industry partnerships (Floridi, 2015). However, our case study revealed challenges in actualising these practices. The onlife approach to working-life competence development has far-reaching implications and benefits, addressing working-life demands, fortifying education, and enhancing workforce capacity (Rathod & Kämppi, 2021). The following sub-sections present our findings and best practices of the onlife working-life competencies development

(1) Goal-oriented Learning with Personal Study Plan: Goal-oriented learning fosters students' ability to succeed in their studies and develop essential career skills (Garrison, 2017; Steenbrugge *et al.*, 2021). Implementation, exemplified in Laurea BIT's Personal Study Plan (PSP), allows students to identify learning goals, break them into manageable tasks, and track their progress. This personalised approach supports efficient study planning and goal attainment.

Implementation in practice: Laurea BIT programme introduces the students to the personal study plan (PSP), recognising students' previous competencies and planning overall working-life growth. The process helps- what do students want to achieve by the end of their degree? Once they know what they want to achieve, their personal study plan, courses and assignments help them to develop a plan for how they will achieve it. The personal study plan helps students to identify their learning goals,

break down large goals into smaller, more manageable tasks, set deadlines for each task, provide regular feedback on students' progress, and celebrate successes.

(2) Developing a Learning-oriented Mindset with Pedagogical and Working-life Skills: Implementing learning theories and practical approaches cultivates students' holistic growth mindset (Anderson, 2020; Palloff & Pratt, 2007). Through courses like Professional Development and Starting a Successful Career, students embrace learning challenges, self-awareness, and problem-solving, enhancing their focus on professional development.

Implementation in practice: Laurea BIT has introduced an orientation course that teaches students the learning theories and learning approaches, to be learning-oriented, curious, embrace study challenges, be persistent, self-aware, respect different opinions, seek feedback, self-management, time-management, and celebrate success. The study plan includes the following study units (micro-courses) in students' personal study plans.

- Study Skills and Professional Orientation (2 ECTS)
- Professional Development (2 ECST)
- Starting a Successful Career (1 ECTS)

The above courses provide inductions and awareness of the working-life skills development, including goal-oriented, learning-oriented mindset, creative and critical thinking, problem-solving and solution-oriented mindset, adaptability, self and time-management, communication, teamwork, decision-making, empathetic and value-based practices, ethical and professionalism, digital and content professional proficiencies, leadership, and life-long learning.

Furthermore, advanced cybersecurity courses also offer students an orientation module that includes (1) course goal

setting with a personal study plan, (2) the learning and pedagogical workshop and study materials, and (3) ethical and professional commitment to studies. The orientation module teaches students the importance of learning, studying, and pedagogical practices. This empowers students to focus on learning and studying rather than solely on grades. Therefore, grades are not the primary focus; instead, the emphasis is on learning, professional development, and personal growth, which are the most important aspects of the educational programme.

These practices encourage students to reflect on their learning and provide opportunities to practice self-regulation, professional development, and creative and critical thinking in a supportive learning environment.

(3) Self and Time-management: Challenges in self and time management are addressed through well-structured coursework, aligning goals, and realising the importance of students' values for course targets (Monteiro & Leite, 2021; Dumitru *et al.*, 2023). This process supports students in setting realistic expectations, managing their time effectively, and promoting professional values.

Implementation in practice: In practice, advanced BIT programme courses offer students personal study plan with goal-setting assignments that help students precisely plan their target grade levels, identify content targets, identify learning methods, and time management with the entire course schedule with manageable weekly modules and study time plan, the importance of the students' values for the course target, celebrating success, ethical and professional practices. This helps students set realistic expectations from the course along with realistic goals, create a schedule, eliminate distractions, start working on assignments early, take care of their health, well-being and seek help when

needed, adapt to personal learning methods, and understand the importance of professional and ethical values.

(4) Problem-solving and Solution-oriented Mindset: Learning activities and assignments encourage students to tackle problems creatively, nurturing their problem-solving abilities (Bates, 2015). This pedagogical approach provides a supportive environment for students to embrace new ideas and enhance their problem-solving skills.

Implementation in practice: Every module within a course includes self-learning assessments and different assignments encouraging students to brainstorm and providing them with opportunities to work on real-world problems. Teachers are open about their own problem-solving process and share mistakes. The pedagogical approach provides opportunities to try new things and fail. We are continually encouraging students to find sensible solutions and not dwell on the problems all the time by analysing the situation effectively. It is vital to provide students with real-world problems, opportunities to practice problem-solving, feedback on their problem-solving skills, a supportive learning environment, encourage collaboration and use available technology freely. We have experienced that the more students practice problem-solving, the better they are at finding solutions.

(5) Creative and Critical Thinking Skills: Onlife learning promotes deep thinking and originality among students, preparing them for real-world challenges (Voinea & Roijakkers, 2023). Course activities stimulate critical thinking by encouraging debates, reflections, and problem-based learning, empowering students to evaluate diverse perspectives and express their unique ideas freely.

Implementation in practice: The course learning activities and assignments encourage students to foster critical thinking and

encourage students to ask questions. We provide these opportunities through discussion forums where students can discuss course material, participate in debates, and write learning reflections that require students to explore different perspectives. As explained in the previous section providing opportunities with problem-based learning that focuses on real-world problems. Students are given a problem to solve. This type of learning requires students to use critical thinking skills to analyse the problem, identify possible solutions, and evaluate the pros and cons of each solution.

A supportive environment is essential for fostering creativity and critical thinking. Students need to feel safe to take risks and share their ideas. Instructors can create a supportive environment by encouraging, open-minded, and respectful of all students. The course assignments expose students to a variety of perspectives. This is done by assigning readings from different authors and sources, inviting guest speakers from different backgrounds, and encouraging students to participate in workshops, seminars, and hackathons. In addition, we provide an opportunity for students how to evaluate information. This includes teaching them to identify credible sources, distinguish between fact and opinion, and identify bias. Additionally, helping students develop their voice. This means encouraging students to be original, to take risks, and to express themselves in their unique way. The teachers provide these opportunities in communications, tutoring, assignments, self-reflection, counselling, and working-life event participation where they can network and express themselves freely.

(6) Ethics and Values: Educational courses underscore the significance of ethical and professional skills for future careers

(Rovai, 2004). Programs at Laurea BIT emphasise honesty, respect, and professionalism, nurturing an ethical learning environment.

Implementation in practice: The Laurea BIT programme offers study units(courses) that provide opportunities for ethical and professional skills development, as it is an important investment in the future of students. As referred to in previous sections, advanced cybersecurity courses also offer students an orientation module that includes learning tasks and learning activities that help students with (1) Course goal setting with a personal study plan, (2) The learning and pedagogical workshop, and study materials (3) Ethical and professional commitment to studies.

By developing these skills, students can increase job satisfaction, improve career prospects, enhance workplace relationships, and increase productivity and their chances of career success and positively impact the communities.

(7) Professional Skills Development: Adapting to market demands, Laurea BIT's curriculum aligns with industrial certifications and professional frameworks (EC, 2020c). These certifications equip students with the skills demanded by employers, enhancing career prospects and workforce relevance.

Implementation in practice: The Laurea BIT degree programme reviews the curriculum regularly, working with industrial partners and expert groups in addition to the "research first" approach. The cybersecurity specialisation curriculum is mapped with working-life professional certifications, working-life methods, and proven frameworks. Now, the student finishing the course is provided with an opportunity for professional training, comprehensive studies in the professional certification body of knowledge, hands-on practices, applications of the learnt skills and participating in professional events. The research confirms

that professional certification is a credential that demonstrates that an individual has met the specific knowledge, skills, and abilities required to perform a particular job or occupation.

The Laurea BIT programme's many courses are mapped with these professional certifications and body of knowledge training. Therefore, the education offering is directly relevant to workforce capacity-building efforts. The successful students in the courses can demonstrate their expertise to employers and potential employers, gain access to professional development opportunities, stay updated on the latest trends in their field, network with other professionals and enhance their career prospects.

(8) Teamwork and communication: Recognizing the vital role of teamwork and communication in higher education, courses integrate experiential learning to build these skills (Vuotikari, Kluzer & Punie, 2022; EC, 2020c). Laurea BIT fosters collaborative learning through real-world assignments, workshops, and seminars.

Implementation in practice: The Laurea BIT programme and courses integrated these skills development processes working in experiential learning, including problem-solving tasks, project tasks, simulations tasks, applied learning tasks, real-world assignments, and project work with working-life partners. The teamwork, communications and professional skills develop by participating in workshops, seminars, webinars, and hackathon events, including industry visits. The courses offer many of these possibilities, including participating in EU and National Innovation projects, including ECOLHE project tasks.

(9) Formal and informal lifelong learning: Formal and informal learning integration is indispensable for students' growth in onlife learning (Lave & Wenger, 1991). Laurea BIT intertwines

formal and informal learning through workplace development projects and additional learning activities, promoting lifelong learning habits.

Implementation in practice: Laurea BIT programme's courses and degree programmes learning processes are developed in such a way that informal lifelong learning is interwind with study offering even though the informal learning takes place outside of a formal setting, such as through reading, self-study, or on-the-job training. However, the students are encouraged to participate in workplace development projects or expand their learning activities beyond the formal setups.

(10) Leadership and management: Leadership and management concepts are taught extensively in Laurea's advanced courses, enhancing students' problem-solving, decision-making, and leadership skills (Bates, 2015; Jonassen, 1999). Students benefit from diverse learning activities, workshops, and industry networking, encouraging professional development from an early stage.

Implementation in practice: Laurea's advanced cybersecurity courses provide students with the opportunity to develop their leadership skills, lifelong learning, strategic thinking, problem-solving, and decision-making skills. The courses begin by introducing students to the concepts of leadership and management science. Once students understand that leadership and management are skills that can be learned, they are then introduced to a variety of methods for developing these skills. These methods include:

- Learning activities and tasks
- Learning reflections
- Professional training
- Short workshops

- Hands-on practices
- Participation in professional events
- Networking with working professionals

The feedback from students has shown that many of them did not realise that leadership and management are scientific concepts that can be learned in different ways. The most important takeaway from this study: students need to be introduced to pedagogical and learning science as early as possible in their education. This comprehensive analysis demonstrates the significant benefits of implementing onlife learning best practices and how Laurea BIT's pedagogical approach equips students with essential skills for their future careers.

7. Conclusion

In conclusion, the adoption of an onlife approach to working-life competence development stands as a pivotal strategy in fortifying the education system. The active integration of onlife learning practices introduces a dynamic shift in educational paradigms. It promotes not only academic excellence but also the development of skills that resonate with the ever-evolving demands of the modern workforce (Floridi, 2015). By encouraging students to actively participate in their learning journey and infusing real-world applicability into their education, the onlife approach instigates a transformative educational experience. This approach has the potential to better equip individuals for the professional landscape, fostering adaptability, critical thinking, and self-motivation, thereby enhancing the students' success in their future careers. Therefore, implementing an onlife approach emerges as an

essential paradigm shift towards a more effective, engaging, and adaptive educational system (Floridi, 2015).

The significance of the onlife approach in education is underpinned by several key elements. Firstly, the swiftly evolving landscape of work necessitates a constant evolution of skill sets, making adaptability a cornerstone of success in contemporary professions (Floridi, 2015). The onlife approach is geared towards cultivating these adaptable skills, ensuring students are equipped for the diverse and dynamic career paths that lie ahead (Siemens, 2014).

Secondly, the conventional teacher-centric education model is losing relevance among learners (Järvelä & Hadwin, 2013). Studies demonstrate that students excel when actively engaged in the learning process (Floridi, 2015; Garrison, 2017). The onlife approach champions this engagement, elevating the effectiveness of the learning process. This method also empowers students by granting them greater control over their learning experiences, fostering self-motivation and goal attainment (Floridi, 2015; Bandura, 1977; Boekaerts, 1997; Zimmerman, 1990).

The integration of onlife learning practices presents a transformative shift in educational paradigms. It doesn't just promote academic excellence but also inculcates skills that align with the contemporary demands of the professional world (Floridi, 2015; Winters *et al.*, 2008). By encouraging active student involvement and infusing practical applicability into education, the onlife approach initiates a revolution in learning experiences. This approach has the potential to better prepare individuals for the professional landscape, cultivating adaptability, critical thinking, and self-motivation, thus enhancing students' prospects in their future careers (Deci & Ryan, 2000; Floridi, 2015; Vygotsky, 1978). Therefore, the implementation of an onlife approach represents an indispensable shift towards an education system that is more

effective, engaging, and adaptable to the demands of the modern workforce.

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