SUMMARY

WP2: Theoretical and empirical framework of transformative digital pedagogical competences

WP2.1 Overview of assessment frameworks

Coordinator: RTU, Latvia

Partners: TECHNOLOGIKO PANEPISTIMIO KYPROU (E10208024 - CY), TECHNOLOGICAL UNIVERSITY DUBLIN (E10184018 - IE)

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April 2023

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INTRODUCTION

By providing the reports to activity WP2.1. – overview of assessment frameworks, the comprehensive analysis of existing frameworks of pedagogical competence of academic staff were conducted, examining its various aspects and core elements, and presented in the report of each partner: Riga Technical University, Cyprus University of Technology, Technological University Dublin.

As activity WP2.1. involved an overview of existing pedagogical assessment frameworks as well as digital assessment frameworks that can partially inform the creation of a new assessment framework on transformative digital pedagogies for academic teaching staff, by highlighting key findings and recommendations for further activities of the project.

As pedagogical competence has emerged as a significant phenomenon for the effectiveness of study process in higher education institutions, the developed reports aim to highlight the core criteria and indicators already used by different higher education institutions in several countries, exploring the multifaceted nature of pedagogical competence and considering multidisciplinary approach, paying special attention to the digital competence.

In order to achieve a comprehensive understanding of pedagogical competence, these reports draw upon a wide range of data sources, including academic research, educational reports and experts' opinions. By integrating these diverse perspectives, the holistic view of pedagogical competence framework has been provided.

GENERAL OVERVIEW OF REPORTS

Report of Riga Technical University focuses on analysing the future perspectives of higher education and the concept of pedagogical competence in the perspective of different countries: Latvian perspective, Canadian perspective, Danish perspective, the UK perspective, Irish perspective, Estonian perspective and Lithuanian perspective. Firstly, by analysing the strategic documents of the specified countries the three core aspects were highlighted: paradigm shift in higher education, digital transformation and life-long learning. Secondly, it compares the general findings by developing the comparative matrix for the specified criteria and indicators: for key group, general subject group and subject group.

Report of Technological University Dublin evaluates the updated Bloom' s taxonomy relating to the assessment of pedagogical competence of academic staff for progress and dynamics check. Moreover, it provides the dynamic levels of learning, specifying six corresponding levels. Additionally, the complex learning environment is analysed and investigated, emphasizing the same elements: digital transformation, paradigm shift in higher education and life-long learning, adding student-centred approach.

Report of Cyprus University of Technology focuses on paradigm shift in higher education, analysing theories of constructivism, social constructivism and connectivism. In addition, the digital transformation aspect is analysed in the perspective of Cyprus Higher Education, emphasizing also the National Strategy for Lifelong Learning. Moreover, the Cyprus perspective for pedagogical competence was specified.

Report of each partner is developed following general guidelines for activity WP2.1. - overview of assessment frameworks, by specifying the core criteria and indicators for the assessment of pedagogical competence of academic staff, based on the conducted research. The emphasize is on the primary tenets for higher education:
- paradigm shift;
- digital transformation;
- life-long learning.

By drawing parallels to partner countries, similar attributes that contribute to effective teaching/learning were specified, following the analyses of strategic documents of each country, where the future perspectives of higher education were highlighted.

Three-level approach was recommended for the assessment process of pedagogical competence of academic staff, following Bloom' s taxonomy theory.

CONCLUSIONS

By summing up three reports of Riga Technical university, Cyprus University of Technology and Technological University Dublin the following conclusions were developed:

1. pedagogical competence is a critical aspect of effective teaching and learning. It encompasses the core tenets and aspects necessary for educators to ensure the effective study process in higher education institutions;

2. the future perspectives of higher education covers three core aspects: paradigm shift in education, digital transformation and life-long learning, considering the strategic documents of the specified countries;

3. despite the fact the key aspects in the context of higher education and academic staff are similar among the compared countries, while the future perspectives are more ambitious in Ireland, the UK and Denmark;

4. the analysed countries see the potential of innovation, research and information and communication technologies for ensuring the quality of higher education and scientific excellence and should be considered for future career planning of academic staff;

5. in the perspective of the European countries (Denmark, the UK and Ireland) it is possible to draw a clear parallel concerning the understanding of the pedagogical competence of academic staff, while in the Canadian perspective it is impossible, as the concept is absolutely different. The Canadian perspective covers the key group, that is related to teaching/learning and assessment, while there are no components of other specified groups;

6. digital aspect is specified only in the perspective of Ireland, while the general digital plan for the country is developed in each partner country;

7. three-level approach is recommended for the assessment of pedagogical competence of academic staff;

8. Bloom' s taxonomy is specified for further activities development for the assessment of pedagogical competence of academic staff.

The information society of today, where knowledge and technology are changed at an increasing speed, there is a need for the academic staff not just process knowledge, but generate, process and apply it to practical areas and problems. That means higher education institutions should keep up with societal and technological changes with regards to teaching/learning core elements (educator, student, content, study environment, etc.).

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REPORT

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WP2.1 Overview of assessment frameworks

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INTRODUCTION

The purpose of this report is to present a comprehensive analysis of existing frameworks of pedagogical competence of academic staff, examining its various aspects and core elements, in accordance to activity WP2.1. – overview of assessment frameworks. This task involved an overview of existing pedagogical assessment frameworks as well as digital assessment frameworks that can partially inform the creation of a new assessment framework on transformative digital pedagogies for academic teaching staff.

As pedagogical competence has emerged as a significant phenomenon for the effectiveness of study process in higher education institutions. This report aims to highlight the core criteria and indicators already used by different higher education institutions in several countries, exploring the multifaceted nature of pedagogical competence and considering multidisciplinary approach, paying special attention to the digital competence.

In order to achieve a comprehensive understanding of pedagogical competence, this report draws upon a wide range of data sources, including academic research, educational reports and experts' opinions. By integrating these diverse perspectives, the holistic view of pedagogical competence framework has been provided.

1. FUTURE PERSPECTIVES OF HIGHER EDUCATION

The emphasize of the project is on the academic staff of higher education, therefore key perspectives and trends have to be analysed to highlight the core requirements for adopting the faced changes and challenges.

By analysing the following strategic documents of Latvia: Sustainable Development Strategy of Latvia until 2030, 2010; National Development Plan of Latvia for 2021-2027, 2020; Education Strategy 2021-2025, 2020 and the opinion of different authors, concerning the future perspectives for career planning of academic staff in higher education institutions, covering long-term life transitions (Cranmer, 2014); digital competence and skills (Carretero, Vuorikari, Punie, 2017), paradigm shift in education (Jacobs, Farell, 2009; Blūma, 2016), digital transformation (Elliott, 2017; Zogla, Prudnikova, Mykhailenko, 2019), life-long learning (Rivza, Markus, Kruzmetra, 2021), it is concluded that for effective academic career planning the three core aspects have to be considered: paradigm shift in education, digital transformation and life-long learning as the background for scientific excellence and innovative digital transformation.

As lifelong learning is bedrock of a sustainable democratic society, scientific excellence, innovative companies and a competent workforce, that meets today's needs and future challenges by training emotional intelligence, a critically minded and digitally skilled professionals.

While digital transformation is the key to productivity, economic growth, and ICT catalyzes change in the economy, public administration and society. The targeted application of ICT helps transform existing and create new processes, business models, habits and culture in all fields. Not only is the knowledge society able to understand, adapt and make full use of the new reality facilitated by digitalization – it is the motivated, skilled and intelligent driver of a comprehensive digital transformation of Latvia (Saeima of the Republic of Latvia, 2020).

Thus, the future perspectives of higher education are outlined by the three key aspects that include paradigm shift, digital transformation and lifelong learning in the Latvian strategic documents, while additionally specifying the necessity of innovations, achieving the further development and growth, scientific excellence and skilled and competent academic staff. In this perspective a comparative analysis has been carried out in order to see the presence of similar perspectives in the strategic documents of the following countries, drawing the parallels with Latvian perspective: Lithuania, Estonia, Ireland, the UK and Denmark.

Latvia is one of the Baltic States, so Lithuania (LT) and Estonia (EE) are listed, adding Denmark (DK), the UK (UK) and Ireland (IE) as the best examples of high development and achievements in the sphere, specified in the report of European Commission on modernization of higher education, considering the aspect of academic staff in Europe (European Commission/EACEA/Eurydice, 2017).

Firstly, Lithuanian perspective has been analysed through Lithuanian's Progress Strategy "LITHUANIA 2030" and 2021-2030 National Progress Program: strategic goals and tasks. The key document Lithuanian's Progress Strategy "LITHUANIA 2030" reflects a national vision and priorities for development, including different areas. Priorities of education have been specified under Smart Society area and are formed by openness (openness to new ideas), creativity (implementing innovations and challenges) and responsibility (demonstrating solidarity and self-governance) with academic staff that is educated, interested in science and innovation, easy and familiar with the latest technologies, good at foreign languages, and eager to pursue lifelong learning. In addition, individual development, productive interaction, and international cooperation have been pointed out (LITHUANIA2030, n.d.). Same reflection is observed in 2021–2030 NATIONAL PROGRESS PROGRAM, considering learning society, students' learning outcomes and lifelong learning; the need to strengthen attractiveness and competitiveness of the research system; innovation performance and the proportion of innovative and high added value solutions, by developing research, technology and innovation to promote sustainable development and international competitiveness.

Secondly, Estonian perspective has been analysed through Estonia 2035 Action Plan of the Government of the Republic and Education Strategy 2021-2035, considering the necessity to review the area of skills and the labour market, to implement the improvement of the quality in the context of higher education by increasing the efficiency of its funding, to improve an international competitiveness of higher education by expanding work-based learning and developing of the internship system, to bring people's knowledge, skills, and attitudes in line with the needs of the labour market and structural changes in the economy (Estee2035, 2022). While, in accordance to Education Strategy 2021-2035 the following biggest changes have been drawn up: student-centred learning and teaching; skills-based professionals and their qualification development; a diverse learning environment and development of future competences; supporting learning throughout life; a research-based approach, the potential of digital solutions and a career model for academic staff (Ministry of Education and Research, 2020).

Thirdly, Ireland perspective has been analysed through National Development Plan 2021-2030 and National Strategy for Higher Education to 2030, considering 5 objectives of innovation and skills, supporting a knowledge-based, innovative, creative society. The development of human capital and knowledge must be as the high priority, including digital transformation and high competitiveness. Overall, research and innovation are gaining in significance as a key differentiator of the fields. The establishment of the Department of Further and Higher Education, Research, Innovation and Science in 2020 was a recognition of the State of the centrality of knowledge, talent and skills by providing the opportunity to the further development and growth as of academia as of research capacity (Government of Ireland, 2020). The ideas of innovation, competitiveness and continuing academic excellence has been already presented in 2011, by developing the National Strategy for Higher Education to 2030, adding the changes and challenges through innovative approaches to research-led teaching and learning and a quality assurance system – all of which will reflect a new emphasis on nurturing creative and innovative minds. Irish higher education has a strong international presence and is engaged in high-quality research for regional, national and global needs. The quality of teaching, scholarship and external engagement of academic staff must be continuously reviewed in all institutions as part of a robust performance management framework. Reliable and consistent data on the outcomes of higher education from the perspective of both students and academic staff should be publicly available and feed into a process of continual development. At the same time the integrating research with teaching and learning is highly recommended (Department of Education and Skills, 2011).

Fourthly, the UK perspective has been analysed through The Future of Higher Education, Higher education policy statement & reform consultation and International Education Strategy: global potential, global growth. It is important to note that the UK has a world-class education with a global reputation and a strong presence in international market. As their higher education institutions are amongst the most renowned and prestigious in the world. Therefore, the UK is the best practice example for the future perspectives analyses and planning in the context of higher education institutions and academic staff.

The higher education reform has started more than 40 years ago in the UK, so at the moment a lot of objectives and tasks have been already achieved and can be used by others for planning further developments and improvements of higher education in general, while the key reason of being ahead is the funding and investments systems. Primary priorities of the specified document had covered the excellence in teaching/learning, the launching of the Teaching Quality Academy, providing the significant role of the higher education institutions

for the total growth and development of the country, the development of research potential, the offered development model for academic staff career (Education and Skills Committee, 2003). The higher education institutions of the UK are offering the world-leading powerhouses of innovation and research, by taking a significant place in the global higher education system and equipping students and academic staff with the updated and required skills and knowledge, and a grounding in the experience they will need to succeed in life and academic career (Department for Education, 2022). Besides this according to International Education Strategy: global potential, global growth with the ambitious future perspectives: by sharing knowledge, skills and innovation with international partners around the world, to generate opportunities to help raise education standards both at home and around the world; education exports to bring value in the collaboration and partnerships they foster, to drive ambition across the UK education sector, to champion the breadth and diversity of the UK's international education offer, to strengthen the position as the partner, to provide the practical solutions and tools it needs to harness its full international potential (Department for Education, 2021).

Finally, Denmark perspective has been analysed through Denmark's National Reform Program 2022, Denmark's strategy for lifelong learning – Education and skills upgrading for all and Growth & Development Strategy 2016-2025, focusing on long-term solutions through reforms, education, innovations, development and growth. While in the context of higher education only two components from the first stage of the reform correspond to the current comparative analyses: educational development and digital transformation (Ministry of Finance, 2022). There are four tracks for further development indicated in Growth & Development Strategy 2016-2025, while only knowledge & skills are relevant to the current study. The mentioned track covers the access to a highly qualified workforce and effective knowledge environment; the increase of a number of collaborations between industry, educational and knowledge institutions, public authorities, employment authorities; the ensuring of new knowledge and innovation, and strengthening the total competitiveness (The Regional Council, 2016). Moreover, life-long learning idea has been effectively development from 2008. As Denmark is one of the countries where most people participate in education, including the higher education field, that is proved by the total of investments in the development of new qualifications and competences, that is the highest in Europe. The future perspectives had been ambitious – a world – class education system of all levels. Everyone should be engaged in lifelong learning and this process had to be effective and flexible, by improving the competences and skills (Undervisnings Ministeriet, 2008).

The comparative analyses are presented in Table 1.

Table 1

Comparative Analyses of the Future Perspectives in Higher Education

	LV	LT	EE	IE	UK	DK
Strategic Documents	Sustainable Development Strategy of Latvia until 2030 National Development Plan of Latvia for 2021-2027	Lithuanian's Progress Strategy "LITHUANIA 2030" 2021-2030 National Progress Program: strategic goals and tasks.	Estonia 2035 Action Plan of the Government of the Republic and Education Strategy 2021-2035.	National Development Plan 2021-2030 National Strategy for Higher Education to 2030.	The Future of Higher Education Higher education policy statement & reform consultation International Education Strategy: global potential, global growth.	Denmark's National Reform Program 2022 Denmark's strategy for lifelong learning – Education and skills upgrading for all Growth & Development Strategy 2016-2025.
Paradigm Shift in Education	Closer link with economics and public service Quality of education	Openness Creativity Responsibility Research, technology, innovation	Quality Internship system Student-centered approach Skills-based	Innovations competitiveness Continuing academic excellence	Global potential Excellence in teaching/learning Power of innovation and research	World-class education system
Digital Transformation	Specified in strategic documents	Smart Lithuania	Digital solutions	Specified in strategic documents	Not separately specified	Not separately specified
Lifelong learning	Specified in strategic documents	Specified in strategic documents	Specified in strategic documents	Development during the whole life	Support development during the whole life	Specified in strategy even in 2008

So, by summing up, despite the fact the key aspects in the context of higher education and academic staff are similar among the compared countries, while the future perspectives are more ambitious in IE, UK and DK. Still all countries see the potential of innovation, research and ICT for ensuring the quality of higher education and scientific excellence and should be considered for future career planning of academic staff.

2. PEDAGOGICAL COMPETNECE IN THE PERSPECTIVE OF DIFFERENT COUNTRIES

As for a future perspective, pedagogy is relational. Both academic staff and students are transformed through the pedagogical encounters as they learn from each other. The productive tension between simultaneous individual and collective transformation defines pedagogical encounters. Teaching and learning are both nourished by, and contribute to, the knowledge common. While the traditional pedagogical triangle of student, educator and content need to be envisioned within the wider world. Such pedagogies call for continuous development as for the students as for the academic staff (UNESCO, 2021).

In addition, the information society of today, where knowledge and technology are changed at an increasing speed, there is a need for the academic staff not just process knowledge, but generate, process and apply it to practical areas and problems. That means higher education institutions should keep up with societal and technological changes with regards to teaching/learning core elements (educator, student, content, study environment, etc.). Fundamental changes have also taken place in the role of academic staff. Nowadays, academic staff has to implement lifelong learning approach with continuous professional development, paying special attention to pedagogical competence that is also guiding students on how to acquire new knowledge. So, higher education institutions should focus on professional development programs in teaching/learning for academic staff, to ensure the high level of mastery afterwards (Koc, Demirbilek, Ince, 2015).

Latvian perspective is used as a background for the further comparative analyses, specifying the same countries: Lithuania, Estonia, Ireland, the UK and Denmark, adding Canada in the international dimension.

2.1. LATVIAN PERSPECTIVE

In Latvian perspective, by moving towards a new academic career framework besides the remuneration, rate of salary, labor contract and tenure track system, the following proposals have been highlighted: cancelation of elections, qualification (minimal requirements), competence (minimal requirements), regular performance evaluation, etc. (IZM, World Bank, EC, 2022). So, in order to improve the qualification, competence and performance of academic staff on regular basis, higher education institutions have to evaluate effectively and promote

the improvement of pedagogical competence of academic staff, ensuring the continuous professional development and lifelong learning, preparing for new updated directions and trends in the transformative digital learning context. While, to determine specific evaluation and assessment criteria and indicators of PCAS in higher education institutions there is a need to conduct the comparative analyses of good practice examples in order to clarify the theoretical aspects and basic principles for the formation of PCAS and the assessment procedure of it.

Focusing on the concept of academic staff of higher education institution in Latvian perspective pedagogical competence is offered (see Figure 1).
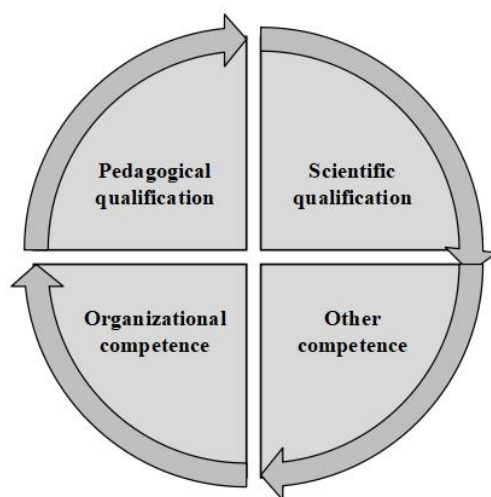
Figure 1 **Latvian Perspective of Pedagogical Competence**

Latvian perspective of pedagogical competence is developed, in accordance to Regulation Nr. 129 of Cabinet of Ministers Republic of Latvia, the procedure for evaluating the scientific and teaching qualifications or results of artistic creation work of an applicant for the position of professor or associate professor is described. By drawing parallels, the key group is formed of pedagogical qualification, the general subject group is formed of scientific qualification and subject group (follow-up) is formed of organizational competence and other competence. The list of minimal requirements for the indicated criteria is presented in Annex 1 of the mentioned regulation (LR MK, 2021).

So, Latvian perspective of pedagogical competence is formed of four specified fields: scientific qualification, pedagogical qualification, organizational competence and other competence. While the pedagogical qualification is considered from competence category and is directly related to the supervision activities, organization of study process (goals formation, content creation, methods and approaches, continuous development).

2.2. CANADIAN PERSPECTIVE

To display an international vision of pedagogical competence formation a Canadian perspective as a good practice example is analysed. The Canadian perspective of pedagogical competence offers three dimensions approach, covering fundamentals of learning, engagement of students and the assessment procedure of the learning outcomes (see Figure 2).
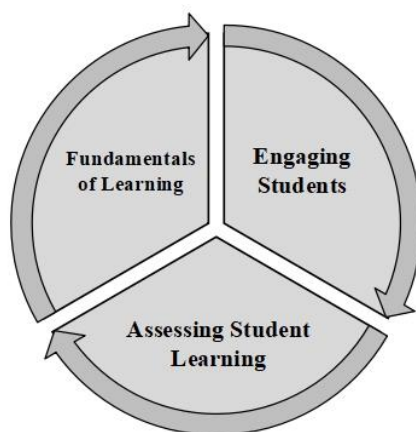

Figure 2 **Canadian Perspective of Pedagogical Competence** (westernU.ca, n.d.)

According to Canadian perspective there is a need to clarify each indicated field. Basing on the generalized data the additional criteria has been specified (see Table 2).

Table 2

Perspective of Pedagogical Competence

(adopted from (westernU.ca, n.d.) researcher's concept)

Fundamentals of Learning	Engaging Students	Assessing Student Learning
Active learning: - Evidence-based approach; - Problem-based approach; - A collaborative learning environment	**building community:** - diversity of students; - personalization (individual features of students)	**Understanding of learning roles in study process**
Critical thinking: - Understanding of logical link; - Problem defining; - Argumentations, evaluation - Errors detection, compliance check; - Problem-solving	**The first lesson concept:** - Planning of study achievements; - Lecture plan; - Personalization (educators' acquaintance with classroom work and technologies)	**Assessing:** -diagnostic; - formative; - summative
High-impact practice, experience	**Large class teaching**: - team work and groups work	**Feedback and assessment tools**: - students' involvement in the assessment process

Several points need to be clarified from the Canadian Perspective. Firstly, fundamentals of learning with three key criteria, where active learning is understood as a special approach with thoughtful engagement of students either with the course material and with one another, but not just watching, listening, and taking notes (Felder, Brent, 2009).

According to formal definition to think critically is to analyse and evaluate information, reasoning and situations, according to appropriate standards, for the purpose of constructing sound and insightful new knowledge, understandings, hypotheses and beliefs. Critical thinking encompasses the subject's ability to process and synthesize information in such a way that it enables them to apply it judiciously to tasks for informed decision-making and effective problem-solving (Heard, Ramalingan, Scoular, Teo, 2020).

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While Rios indicates that critical thinking is the ability to identify and solve problems; formulate, evaluate and use information; test ideas based on relevant criteria; recognize one's own judgment and test them; to communicate effectively (Rios, 2015).

In turn of high-impact practices several are specified that foster student success, covering academic achievement, engagement, satisfaction, and student persistence (Kuh, O'Donnell, Schneider, 2017). Secondly, engaging students, where the active usage of collaboration approaches is specified like team or groups work, community creation and large class teaching, additionally specifying the importance of the first day of class that influence the general mood of the whole course. Finally, assessing student learning, where the key role is of academic integrity – the system of values that shape institutional policies, the background is formed by the International Center for Academic Integrity, specifying it as a commitment to five fundamental values: honesty, trust, fairness, respect, and responsibility (ICAI, 2021). Additionally, the grading strategies are specified as the most time consuming and disliked activity. Moreover, feedback and assessment tools are indicated for progress check and further activities planning (westernU.ca, n.d.).

To display European vision of pedagogical competence the perspectives of the following countries are analysed: Denmark, the UK, Ireland, Lithuania and Estonia. Same countries are compared in Chapter 1 forming the theoretical background, as Latvian, Lithuania and Estonia are three Baltic states that are compared on regular basis, while Denmark, the UK and Ireland are recommended by EC report as good practices examples for academic staff issues (European Commission/EACEA/Eurydice, 2017).

2.3. DENMARK PERSPECTIVE

Denmark's higher education system is one of the best known in Northern Europe and it is renowned for its excellence and innovation. It is regulated by the state, but Danish educational institutions enjoy a high degree of autonomy. Higher education in Denmark combines traditional lecturers and tutorials with teaching that will help students develop strong problem-solving skills. Additionally, open debate and problem-based learning methods will encourage students to express themselves, to pursue experiments and to work collaboratively with others. Moreover, the learning environment is friendly and relaxed with students and lecturers debating openly during classes (Danish Agency for Higher Education and Science, 2022).

Considering a high degree of autonomy there is no unique Danish perspective of pedagogical competence, while a good practice example is mentioned by University of Copenhagen. In 2017 University of Copenhagen offered the Pedagogical Competence Profile (see Figure 3). The basis of the profile is formed by the academic qualifications and knowledge of the academic subject.
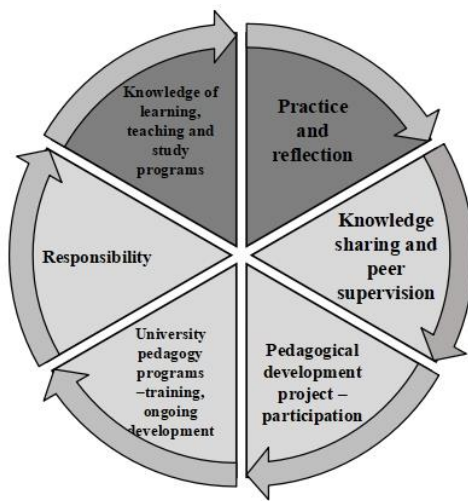

Figure 3 **Danish Perspective of Pedagogical Competence** (Kobayashi, Dolin, 2017)

The pedagogical competence is described and understood in six specified areas, where two are the core ones:

- the first core area is knowledge of learning, teaching and study programs – including the understanding of teaching/learning in higher education, didactics of own subject, capabilities to bring this knowledge into practice, to support students' learning;

- the second core area is practice and reflection – the ability to establish and develop good teaching practices through continuous reflection on their own teaching/learning. This is directly linked with the first core area.

The additional specified areas are as following:

- area of responsibility, including teaching/learning of courses organized by others, individual planning of long courses, helping to develop whole courses and programs;

- area of knowledge sharing and peer supervision – firstly, educators' development; secondly, quality development of teaching/learning in the department and finally, knowledge sharing on a broader level (organizational, societal or international);

- area of university pedagogy programs – educators' formal pedagogical qualification and the ongoing development by participating in and contributing to formal activities;

- area of pedagogical development projects – the participation in projects development ((Kobayashi, Dolin, 2017).

The issue of responsibility is the core one, while the understanding of it varies. In common educators at all level of education are vested with numerous responsibilities, which are primarily related to promoting effective growth and development of students, facilitating the achievement of academic goals and up-grading the overall system of education. Moreover, the certain aspects are specified during the recruitment process, that are identified in labor contract and covers educational qualifications, experience, competence and personality traits. Considered all around the following aspects can be listed among the responsibilities of the educators: managerial functions, personnel management, student management, academic management, performance assessment, taking actions, counselling and guidance, use of technology in education, development of leadership skills, development of communication skills, providing equal rights and opportunities and promoting discipline. In reference to higher education institutions the list of responsibilities is formed in accordance to their development strategy and priorities   .

Additionally, Alex Kostogriz emphasizes that standards-based accountability is increasingly mediating educators' judgements and actions, while in the context of responsibility the self-activities and autonomous representative of their self are listed for effective teaching/learning and responsible dialogue with others as students, as colleagues (Kostogriz, 2019).

Summing up, aligned with the nature of teaching and learning, the proposed profile characterizes pedagogical competence as individual development process that is specified goals directed and purpose driven. Whether that purpose is knowledge sharing, peer supervision, pedagogical development, project participation, ongoing development or responsibility, pedagogical competence assumes not simple teaching/learning, practice and reflection, but continuous development and active responsible practice.

2.4. THE UK PERSPECTIVE

Next, the UK perspective of pedagogical competence is analyzed. If to speak about the higher education in the UK, than all universities are legally independent corporate institutions. The Department for Education and Skills is responsible for all universities in the UK. There

are several Excellence Frameworks as a method used for assessing the level of excellence in different specified aspects of British higher education institutions (European University Institute, the United Kingdom, 2018).

There is the UK Professional Standards Framework that has been developed almost ten years ago, but is still fundamental and forms the background for teaching/learning and supporting learning in higher education institutions. This framework has been developed in cooperation of leading departments such as the UK higher education sector, Guild HE and Universities UK in 2011. The UK perspective of pedagogical competence covers three core dimensions: core knowledge, area of activities and professional values (see Figure 4).

The first direction of core knowledge outlines the theoretical primary tenets of study process, considering study content and materials, used methods and approaches, the assessment and evaluation of the outcomes and quality assurance, quality enhancement. While the direction of area of activity displays the study process, considering the designing and planning, implementation and effective environment creation, engagement, support, and guidance. The continuous professional development of academic staff is an essential among professional values, adding individual differences of students, evidence-based approach, promotion, and acknowledgment.
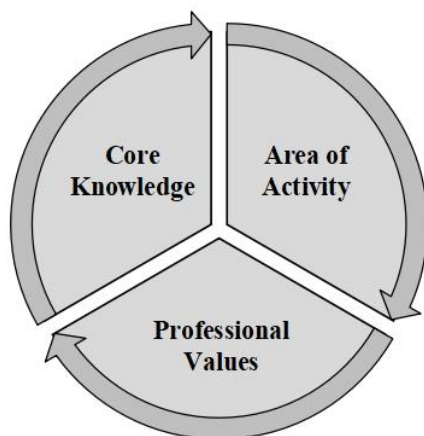

Figure 4 **The UK Perspective of Pedagogical Competence** (Advance HE, Guild HE, Universities UK, 2011)

For a clear understanding of each specified direction of the presented UK perspective of pedagogical competence, the detailed table with criteria is presented in Table 3.

Table 3

Criteria of Pedagogical Competence the UK Case

Dimensions of Framework	Criteria
Core Knowledge	✓ The subject material ✓ Appropriate methods for learning, learning and assessing in the subject area and at the level of academic program ✓ How students learn, both generally and within their subject/disciplinary area(s) ✓ The use and value of appropriate learning technologies ✓ Methods for evaluating the effectiveness of teaching ✓ The implication of quality assurance and quality enhancement for academic and professional practice with a particular focus on teaching
Areas of Activity	✓ Design and plan learning activities and/or programs of study ✓ Teach and/or support learning ✓ Assess and give feedback to learners ✓ Develop effective learning environments and approaches to student support and guidance ✓ Engage in continuing professional development in subjects/disciplines and their pedagogy, incorporating research, scholarship and the evaluation of professional practices
Professional Values	✓ Respect individual learners and diverse learning communities ✓ Promote participation in higher education and equality of opportunity for learners ✓ Use evidence-informed approaches and the outcomes from research, scholarship and continuing professional development ✓ Acknowledge the wider context in which higher education operates recognizing the implications for professional practice

Summing up, in terms of development of pedagogical competence of academic staff each specified level is important, especially achieving mastery in three listed dimensions. In this regard, the continuous professional development of academic staff engaged in teaching/learning is required, fostering dynamic approaches though creativity and innovation, demonstrating the high level of professionalism, acknowledge the variety and quality of teaching, learning and assessment, facilitating activities for quality enhancement.

2.5. IRISH PERSPECTIVE

Irish perspective of pedagogical competence is analysed. Higher education institutions in Ireland, except for the private, independent colleges are autonomous and self-governing, but substantially state funded (European University Institute, Ireland, 2018).

According to Irish Universities Association Irish universities are dedicated to student-cantered learning and teaching as core pillars of the specified mission, enabled by creative scholarship and innovative research which is applied to enhance the economic, social and cultural well-being of the nation. The universities are continuously engaged in ensuring that the learning and teaching which takes place is of the highest possible quality, up-to-date, relevant, and delivered to students in a variety of suitable ways, particularly in light of rapid advances in digital learning and a need to expand lifelong learning opportunities. For this purpose, the universities operate in collaboration with Higher Education Authority and Quality and Qualifications Ireland, contributing to the National Forum for the Enhancement of Teaching and Learning (Irish Universities Association, n.d.).

Moreover, academic staff in Ireland derive their primary identity from their discipline. They are influenced by their organizational settings and the professional and social networks that emerge in those contexts (Clarke, Hyde, Drennan, Politis, 2015).

In 2016 initiated by the team of the National Forum for the Enhancement of Teaching and Learning the National Professional Development Framework has been developed. The document provides guidance for the professional development for all staff who teach in Irish higher education as well as gives direction to other stakeholders, including higher education institutions, higher education networks, educational/academic developers, policy makers and student body representatives. The document forms the background for planning, developing and engaging in professional development activities. The Irish perspective of pedagogical competence is presented in Figure 5.

The developed framework aims to empower academic staff to create, discover and engage in meaningful personal and professional development, additionally to encourage them to engage in peer dialogue and support in their professional development activities. Moreover, to enhance and develop the pedagogy of individual disciplines for relevance and authenticity and enable learning from other disciplines. Besides this, to assist academic staff to reflect on, plan and contribute to the evidence-based enhancement and transformation of their teaching and learning approaches and contribute to the quality assurance and enhancement of the student learning experience (teachingandlearning.ie, 2016).

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According to Figure 5 the pedagogical competence in Ireland covers five domains that correspond to teaching and learning: personal development; professional identity, values and development; professional communication and dialogue; professional knowledge and skills; personal and professional digital capacity. It is important to indicate that academic staff who teach develop their knowledge, skills and competence in their teaching through a range of learning activities. The offered framework identifies and recognizes four types of learning activities, covering new learning, consolidating learning, mentoring and leading. Further the detailed explanation of each domain is provided.
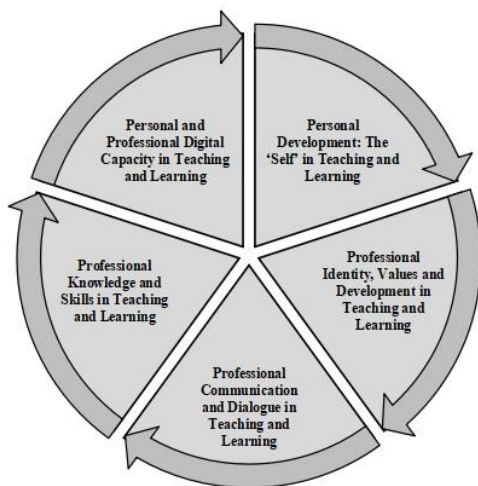

Figure 5 **Irish Perspective of Pedagogical Competence**

Firstly, domain 1 "Personal Development: The 'Self' in Teaching and Learning" emphasizes the personal values, perspectives and emotions that individuals bring to their teaching, including self-awareness, confidence, life experience and the affective aspects associated with teaching. It makes transparent the importance of the personal values that underpin any human interaction, especially those needed for authentic, engaged teaching and how these values are impacted by the work context.

Secondly, domain 2 " Professional Identity, Values and Development in Teaching and Learning" emphasizes the importance of the development and self-evaluation of professional/disciplinary identity and its associated roles, responsibilities and action plans. It encourages academic staff to consider their professional and/or disciplinary identity in their

context of being one of academic staff member or learning support staff who teach or other at a particular point in time. This domain supports the development of academic staff's critical reflection skills and the evaluation of their teaching. In particular, it emphasizes the importance of the development of the scholarship of teaching and learning. Some key professional values are identified. The importance of planning for professional development activities in institutional or other contexts is also highlighted as part of this domain.

Thirdly, domain 3 "Professional Communication and Dialogue in Teaching and Learning" puts special importance on the excellent, clear and coherent communication skills required for the changing learning environment. It emphasizes the key skills of written/verbal/visual communication, listening, dialogue and collaboration with others in the professional learning process. It recognizes the importance of teaching and learning in a community to enhance student learning. The social dimension of professional learning is emphasized, and it recognizes the role that communities of practice and networks play in supporting this locally, nationally and internationally; and within and across disciplines.

Fourthly, domain 4 "Professional Knowledge and Skills in Teaching and Learning" emphasizes the importance of both disciplinary knowledge and disciplinary approaches to teaching, while also drawing on inter-disciplinary experiences and approaches. It supports an active student role in the learning process, moving toward a partnership in the teaching and learning process, essential in the higher education environment. It incorporates academic staff's capacity to design and implement innovative and creative teaching and learning approaches at different levels of curriculum. The importance of assessment and feedback is emphasized, in particular the move to a more learner-oriented and dialogic feedback approach for students and balance in the assessment of/for/as learning. The role of underpinning theories of learning and academic staff's knowledge and contribution to teaching and learning policies, procedures and scholarship is also highlighted.

Finally, domain 5 "Personal and Professional Digital Capacity in Teaching and Learning" emphasizes the importance of personal and professional digital capacity and the application of digital skills and knowledge to professional practice. The domain focuses on the development of personal confidence in digital skills to develop professional competence and the identification of opportunities for technology to support and enhance student learning. This domain is underpinned by the National Digital Skills Framework for Education (teachingandlearning.ie, 2016).

In addition, each domain has a list of elements that need to be considered for the continuous professional development. The offered framework is underpinned by both a

reflective and an evidence-based approach, assuming cyclical and reflective process. Using competence development cycle, the same principle is used here, following 4 steps:

- reflecting on current knowledge and experience (taking stock/identification);

- reflecting to self-evaluate based on evidence (identification/documentation);

- reflecting on what evidence to gather and how to store it, self-assessment (documentation/assessment);

- reflecting on identity, plan and prioritize future learning, external assessment and/or certification of learning to date (assessment/certification).

The offered framework is flexible, inclusive and can be interpreted and adapted according to the needs of academic staff across disciplines as well as to the needs of the higher education institution, considering the priorities as at individual as at institutional level (teachingandlearning.ie, 2016).

Summing up the four core domains are specified in Irish perspective of pedagogical competence: personal development; professional identity, values and development; professional communication and dialogue; professional knowledge and skills; personal and professional digital capacity. While using reflective and evidence-based approach the continuous personal and professional development is ensured.

2.6. ESTONIAN PERSPECTIVE

The Estonian higher education system consists of academic and professional higher education. Higher education is provided mainly by universities and professional higher education institutions. There are two types of higher education institutions in Estonia. One is that of universities providing academic higher education and applied/professional higher education programs. Members of academic staff are increasingly selected on the basis of their competences in two main fields: research and teaching/learning experience (European University Institute, Estonia, 2018).

Teaching/learning and research is combined for the academic staff of Estonia, additionally doctoral degree is legally required, offering as indefinite as fixed-time contracting (European Commission/EACEA/Eurydice, 2017).

One of the most popular universities in Estonia – Tallinn University of Technologies. This is higher education institution, which by relying on academic competencies and professional management, responds actively to the needs of the rapidly developing society and

is involved in tackling the challenges of the digital era (Tallinn University of Technologies, n.d.)
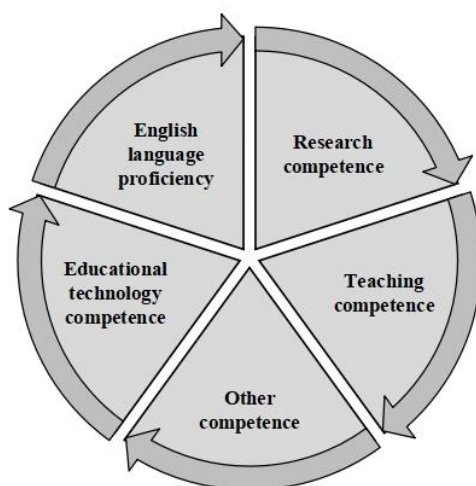

Figure 6 **Estonian Perspective of Pedagogical Competence**

According to Figure 6 the Estonian perspective of pedagogical competence of academic staff covers five fields: research competence, teaching competence, educational technology competence, English language proficiency and other competence. The research competence is directly linked with the teaching competence, as research-based knowledge should be actively used during teaching/learning process.

The offered framework has been developed within the academic career management system for ensuring the quality and continuous development of teaching/learning and research, considering the academic evaluation matrix as the main document for the accreditation and development evaluation and planning. The Academic Evaluation Matrix is a tool for evaluating academic competence and performance. The matrix is used for making decisions concerning academic posts, describing the levels of academic competence and performance on a 5-level scale, considering the university's general requirements for the posts. The numerical parameters indicated in the matrix are applied upon the selection and attestation of employees based on the average level in the academic disciplines and specificities of teaching in their research field, which is determined, as a rule, based on comparison with Aalto University, Finland; Chalmers University of Technology, Sweden; the KTH Royal Institute of technology in Stockholm,

Sweden and the universities belonging to the EuroTech Universities Alliance (Senate of Tallinn University of Technology, 2021).

2.7. LITHUANIAN PERSPECTIVE

The Lithuanian system of higher education has undergone profound changes since the early 1990s and the beginning of its democratization process. The situation is very fluid and rapidly changing. The institutions that operate in the Lithuanian higher education system are the Ministry of Science and Education, the Lithuanian Rector's Conference and the Science Council of Lithuania (European University Institute, Lithuania, 2018).

Additionally, concerning teaching/learning and research, these activities are combined for the academic staff of Lithuania (European Commission/EACEA/Eurydice, 2017).
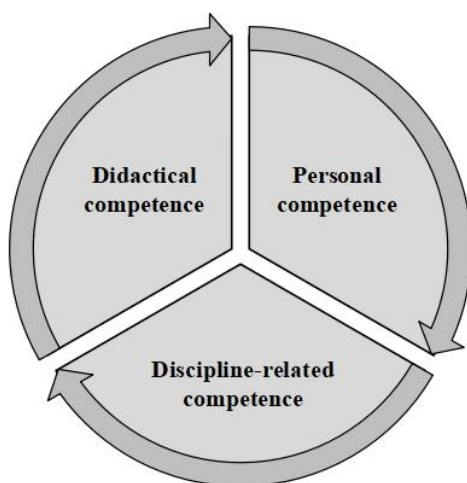

Figure 7 **Lithuanian Perspective of Pedagogical Competence**

According to Figure 7 Lithuanian perspective of pedagogical competence covers three key fields: personal competence, discipline -related competence and didactical competence.

Each higher education institution works out the official document – set of regulations for the teaching/research academic staff recruiting competition, where the list of criteria is specified, covering pedagogical competence. Vilnius University has been chosen for the comparative analyses. According to Annex 1 of Vilnius University Regulations for the

Organization of Teaching Staff and Research/Art Staff Recruiting Competitions and Certification pedagogical competence covers the following six fields:

- the understanding of the goals of teaching/learning and the responsibility of the educator and the student in the study process;

- study and assessment methods, approaches;

- research-based teaching/learning;

- feedbacks;

- cooperation with students, colleagues, other stakeholders;

- self-assessment of pedagogical competence (Senate of Vilnius University, 2021).

Additionally, Annex 4 of the mentioned regulations specify three domains for the pedagogical competence:

- continuous improvement of skills for teaching and supervising students, by using feedbacks, improving pedagogical skills and sharing know-how and good practice;

- teaching and supervising students is focused on learning support and the achievement of learning outcomes, by defining the objectives of the study and assessment and ensuring their mutual coherence, the research-based content, collaborative learning and knowledge creation and the usage of active learning methods;

- development of educational content and the learning environment, research-based materials, ICT effective usage, quality assurance and continuous improvement (Senate of Vilnius University, 2021).

Summing up, the Lithuania perspective of pedagogical competence of academic staff is formed of three core fields didactical competence, discipline-related competence and personal competence. Where the study process is organized with clearly defined goals, by using research-based content and ICT tools, providing the feedback as from students, as self-assessment for continuous professional development and quality assurance.

3. SUMMARY

As a result of comparative analysis in three specified perspectives: international, European and national, the main components of three related groups of pedagogical competence of academic staff were highlighted. First, the comparative matrix of the Baltic States: LV, EE, LT was developed, considering key group (teaching/learning and assessment), general subject group (research-innovative, related to particular discipline) and subject group (follow-up, related to updated requirements, including digital aspect).

Table 4

Comparative Matrix of Pedagogical Competence in the Baltic States

	LV	EE	LT
Key group	Pedagogical qualification	Teaching competence Educational Technology Competence	Didactical competence
General subject group	Scientific Qualification	Research Competence	Discipline-related competence
Subject group	Organizational and other competence	English language and other competence	Personal competence

The results of comparative analyses revealed that the understanding of pedagogical competence is very similar in the Baltic states (see Table 4) and corresponds to three above-specified groups. While for enlarging the concept the comparative analyses of European and international perspectives were conducted, considering Latvian perspective as a background.

Table 5

Comparative Matrix of Pedagogical Competence in the European and International Perspectives

	LV	CA	DK	UK	IE
Key group	Pedagogical qualification	Fundamentals of Learning	Knowledge of T/L Reflection	Core Knowledge	Professional Knowledge and Skills in T/L
General subject group	Scientific Qualification	Assessing Student Learning	Projects Programs Practice	Area of Activity	Professional Development
Subject group	Organizational and other competence	Engaging Students	Peer Supervision Responsibility	Professional Values	Personal and Professional Digital Capacity in T/L Personal Development

If in the perspective of the European countries (DK, UK, IE) it is possible to draw a clear parallel, then in the CA it is impossible, as the concepts of PCAS are different. The CA perspective covers the key group, that is related to teaching/learning and assessment, while there are no components of other specified groups (see Table 5). It is important to indicate, that digital aspect is specified only in the IE perspective.

CONCLUSIONS

Pedagogical competence is a critical aspect of effective teaching and learning. It encompasses the core tenets and aspects necessary for educators to ensure the effective study process in higher education institutions. Based on the conducted analyses, the following conclusions can be drawn:

1. the future perspectives of higher education covers three core aspects: paradigm shift in education, digital transformation and life-long learning;

2. despite the fact the key aspects in the context of higher education and academic staff are similar among the compared countries, while the future perspectives are more ambitious in Ireland, the UK and Denmark;

3. the analysed countries see the potential of innovation, research and information and communication technologies for ensuring the quality of higher education and scientific excellence and should be considered for future career planning of academic staff;

4. in the perspective of the European countries (Denmark, the UK and Ireland) it is possible to draw a clear parallel concerning the understanding of the pedagogical competence of academic staff, while in the Canadian perspective it is impossible, as the concept is absolutely different. The Canadian perspective covers the key group, that is related to teaching/learning and assessment, while there are no components of other specified groups;

5. digital aspect is specified only in the perspective of Ireland.

The information society of today, where knowledge and technology are changed at an increasing speed, there is a need for the academic staff not just process knowledge, but generate, process and apply it to practical areas and problems. That means higher education institutions should keep up with societal and technological changes with regards to teaching/learning core elements (educator, student, content, study environment, etc.).

BIBLIOGRAPHY

1. Blūma. (2016). *Izglītības termini un paradigmu maiņa izglītībā.* Retrieved from http://www.nki-latvija.lv/content/files/2016.09.15_Bluma.pdf

2. Carretero, Vuorikari, Punie. (2017). *Digital Competence Framework for Citizens.* EU: Luxembourg: Publications Office of the European Union,. Retrieved from file:///C:/Users/user/Downloads/web-digcomp2.1pdf_(online)%20(1).pdf

3. Cranmer. (2014). Digital Skills and Competencies in Schools. In T. (. In Passey, *KCICTP/ITEM* (pp. 165-177). IFIP International Federation for Information Processing. Retrieved from file:///C:/Users/user/Downloads/04440165.pdf

4. Department for Education. (2021). *International Education Strategy: global potential, global growth.* Retrieved from https://www.gov.uk/government/publications/international-education-strategy-global-potential-global-growth/international-education-strategy-global-potential-global-growth

5. Department for Education. (2022). *Higher education policy statement & reform consultation.* Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1057091/HE_reform_command-paper-web_version.pdf

6. Department of Education and Skills. (2011). *National Strategy for Higher Education to 2030.* Retrieved from https://hea.ie/assets/uploads/2017/06/National-Strategy-for-Higher-Education-2030.pdf

7. Elliott, S. W. (2017). *Computers and the Future of Skills Demand.* Retrieved from https://www.oecd-ilibrary.org/education/educational-research-and-innovation_20769679

8. Estee2035. (2022). *Estonia 2035 Action Plan of the Government of the Republic.* Retrieved from https://ec.europa.eu/info/sites/default/files/nrp_2022_estonia_en.pdf

9. European Commission/EACEA/Eurydice. (2017). *Modenization of Higher Education in Europe: Academic Staff -2017. Eurydice Report.* . Luxembourg:: Publications Office of the European Union . Retrieved from https://op.europa.eu/en/publication-detail/-/publication/40f84414-683f-11e7-b2f2-01aa75ed71a1/language-en

10. European University Institute, Estonia. (2018). *Academic Career Structure.* Retrieved from https://www.eui.eu/ProgrammesAndFellowships/AcademicCareersObservatory/AcademicCareersbyCountry/Estonia

11. European University Institute, Ireland. (2018). *Academic Career Structure.* Retrieved from https://www.eui.eu/programmesandfellowships/academiccareersobservatory/academiccareersbycountry/ireland

12. European University Institute, Latvia. (2018). *Academic Csreer Structure.* Retrieved from https://www.eui.eu/ProgrammesandFellowships/AcademicCareersObservatory/AcademicCareersbyCountry/Latvia

13. European University Institute, the United Kingdom. (2018). *Academic Career Structure.* Retrieved from https://www.eui.eu/ProgrammesAndFellowships/AcademicCareersObservatory/AcademicCareersbyCountry/UnitedKingdom

14. Jacobs, Farrell. (2001). Paradigm shift: Understanding and implementing change in second language education. *TESL-EJ, 5*((1)), 1-18.

15. Koc, Demirbilek, Ince. (2015). A Needs Assessment for Academicians' Professional Development. *Education and Science, 40*, 297-311. Retrieved from file:///C:/Users/user/Downloads/mkoc2545-31730-3-PB-libre.pdf

16. LITHUANIA2030. (n.d.). *LITHUANIA'S PROGRESS STRATEGY "LITHUANIA2030".* Retrieved from https://lrv.lt/uploads/main/documents/files/EN_version/Useful_information/lithuania2030.pdf

17. LR MK. (2021). *Procedures for Evaluating the Scientific and Teaching Qualifications or Results of Artistic Creation Work of an Applicant for the Position of Professor or Associate Professor and of a Professor or Associate Professor Holding the Position.* Riga: Cabinet of Ministers. Retrieved from https://likumi.lv/ta/en/en/id/321300

18. Rivza, Markus, Kruzmetra. (2021). CREATIVITY OF THE POPULATION AS A KEY TO REGIONAL SUSTAINABILITY AND ENTREPRENEURSHIP DEVELOPMENT. *Proceedings of the 2021 International Conference "ECONOMIC SCIENCE FOR RURAL DEVELOPMENT"* (pp. 381-387). Jelgava: LLU. doi:https://doi.org/10.22616/ESRD.2021.55.038

19. Saeima of the Republic of Latvia. (2020). *National Development Plan of Latvia 2021-2027.* Riga: Cross-Sectoral Coordinator Center. Retrieved from https://pkc.gov.lv/sites/default/files/inline-files/NAP2027__ENG.pdf

20. Saeima of the Republic of Latvia. (2010). *Sustainable Development Strategy of Latvia until 2030.* Retrieved from https://pkc.gov.lv/sites/default/files/inline-files/LIAS_2030_en_1.pdf

21. UNESCO. (2021). *Reimagining Our Futures Together A New Social Contract for Education.* Paris. Retrieved from https://unesdoc.unesco.org/ark:/48223/pf0000379707/PDF/379707eng.pdf.multi

22. westernU.ca. (n.d.). *Centre for Teaching and Learning.* Retrieved from https://teaching.uwo.ca/teaching/learning/active-learning.html

23. Zogla, Prudnikova, Mykhailenko. (2019). 13th International Scientific Conference SOCIETY, INTEGRATION, EDUCATION. *Pedagogical Assumptions of Transformative Digital Model for Social Change.* Rezekne: Rezekne Academy of Technologies. doi: http://dx.doi.org/10.17770/sie2019vol1.3881

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REPORT

WP2: Theoretical and empirical framework of transformative digital pedagogical competences

WP2.1 Overview of assessment frameworks

TECHNOLOGICAL UNIVERSITY DUBLIN (E10184018 - IE)

1. Introduction

Bloom's Revised Taxonomy Model within the context of transformative learning environments requires dynamic learning and teaching process and spaces that actively respond to evolving learning needs driven by rapid changes in technology and innovation. Learning environments require developing learning and teaching spaces that align with the student-centred paradigm where appropriate. Furthermore, learning environments should become dynamic and interactive learning spaces capable of responding to teachers' and students' teaching and learning needs. Therefore, the design of digital-driven learning spaces should consider integrating technology and innovation as enablers and enhancers of learning and teaching activities that contribute to knowledge-sharing and co-creation. The design process should carefully consider the dangers of shifting the emphasis towards technologies and forgetting that technologies and innovations emerge as tools to facilitate learning and teaching processes. Therefore, technologies and innovations should not take the central stage, as they should be understood as enablers and not as the focus, nor should the pedagogical approach be driven by whatever technology is available to hand. Another aspect to be considered relates to incremental levels of complexity associated with learning activities and how they should guide students and learners as they move along the different stages of Bloom's Taxonomy, as outlined in Figure 1 below. We propose dynamic learning environments that function in a context that acknowledges bidirectional and dynamic levels of complexity, where students and teachers reflect on learning and development needs that enable the co-creation of effective learning environments. Consequently, learning environments should be designed and guided by adaptability and agile response systems that enable teachers and students to navigate the complexities imposed by technologies and their fast pace of development (Anderson et al., 2001; Churches, 2008, Stanny, 2016).
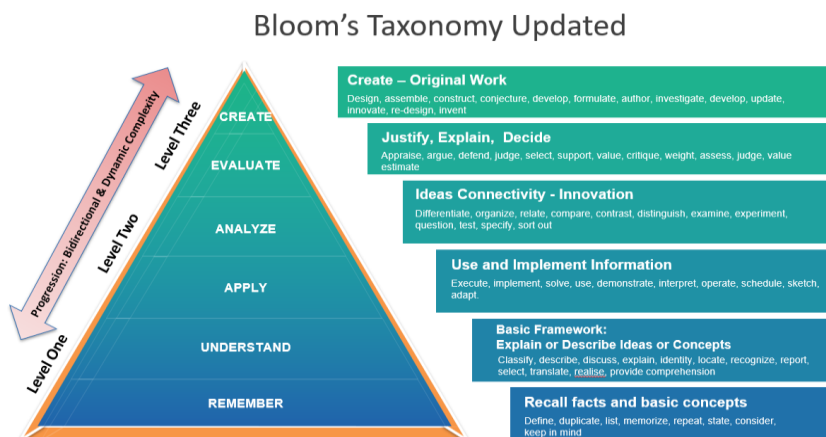

Figure 01: Bloom's Taxonomy – A Progressive and Dynamic Model.

The learning process is associated with a bidirectional learning dynamic that acknowledges different levels of difficulty, as students transition from a basic level of knowledge towards a stage where they can create, co-create and/or innovate. The Bloom's Taxonmy considers the learning experience as an individual and isolated process focused on the individual student. An aspect to be considered within updated transformative learning spaces is the transition towards learning spaces that contributre to the co-creation of original work. The learning environment should facilitate the transition from simple learning towards a more complex level where the learner considers the need to collaborate, participate, inquiry and debate leading towards a process of knowledge sharing and co-creation. Students should be able to grasp basic concepts and start a learning progression where students will develop appropriate competencies to move towards higher levels of learning complexity

where the students will be able to create or co-create original work. The learning process will require significant adjustments driven by the evolving nature of innovation and technology. As such, teachers and students should be able to move along Bloom's taxonomy as needed and dictated by individual learning needs to become active collaborators and co-creators of knowledge.

2. Paradigm Shift in Education – Technology to Support in Teaching & Learning

The concept of paradigm changes or shifts in sciences was pioneered by Kuhn (1970), as he argued that change does not occur in a step-by-step way or through some accumulation process. Change is associated with complex dynamics and disruptive processes that challenge existing knowledge and require competencies that enable flexibility, adaptability, and dynamic learning that evolves as the learner grows and develops. The term *"paradigm shift"* started to be used in education to think about needed changes. We understand a paradigm shift in existing educational models as the need to provide transformative learning spaces. We are immersed in processes of significant change and challenges derived from the digital and knowledge economy that demands the development of new competencies that simultaneously require more sophisticated learning environments. Educational models are in need of change because of new socioeconomic dynamics and learners' diverse needs and demands. Our current paradigm shift is significantly impacted by fast-evolving technologies and innovation that require higher adaptability and flexibility. New learning spaces should promote the development of autonomous and self-regulated learning process as learners take ownership of their development and progress. The concept of learning autonomy is linked to Vygotsky's (1978) concept of self-regulation and to work on flow dynamics introduced by Csikszentmihalyi's (1990) that can be associated with dynamic levels of learning captured by Bloom's Taxonomy in figure 2 below.
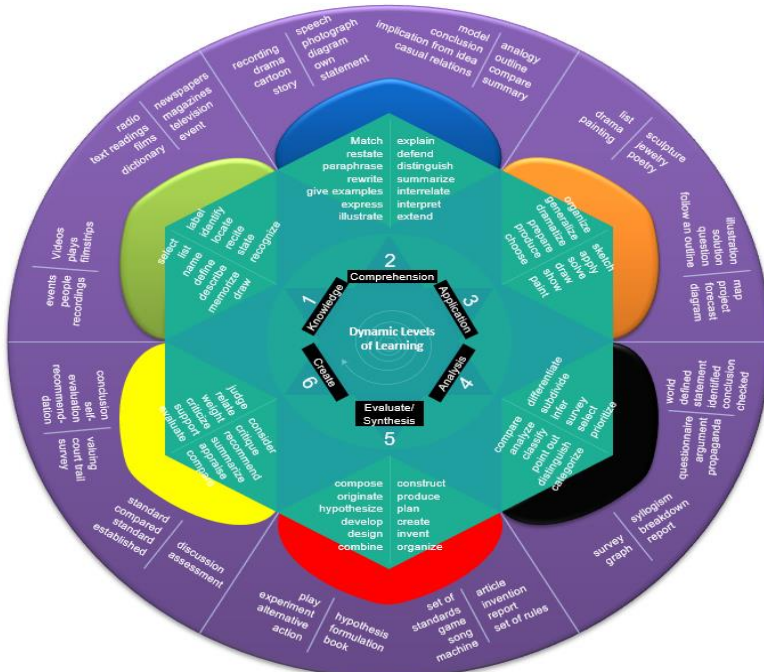

Figure 02: Bloom's Taxonomy from Passive to Active Learning – Circular Action. Adapted from West Virginia University

In parallel, higher education institutions are facing dramatic changes due to the lifelong learning process and pressures from the labour market that demand continuous reskilling, upskilling and the development of new competencies. The diversity of the student population demands new levels of support towards teaching and learning activities to foster learner autonomy and embrace active learning spaces where teachers and students emerge as active co-creators of the learning process. These significant changes need to be considered as part of innovative learning spaces. We need to reflect on the basic features of our proposed new learning environments and how they are interconnected as follows and summarised in figure 3 below:

1. Diversity of the Student Population driven by lifelong learning challenges.
2. Learners' autonomy and self-regulation processes.
3. Cooperative and Active Learning Processes.
4. Focus on Discipline/Meaning/Application and not on technology.
5. Holistic Learning – Multidisciplinary, Interdisciplinary and Transdisciplinary Dimensions (Challenges and Benefits).
6. Critical Thinking, Analytical and Active Skills.
7. Curricular Design and Alternative Assessment.
8. Active, Constructive, Personalised and Authentic Feedback.
9. Teachers as co-learners.
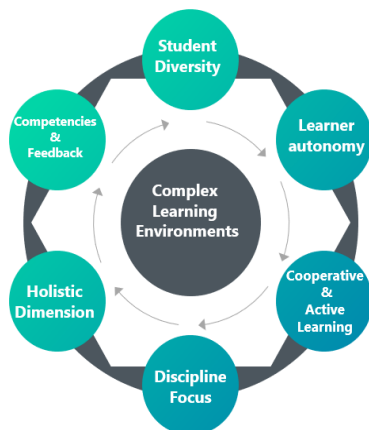10. Teachers and students as Co-creators of Learning Spaces.

Figure 3: Complex Learning Environments. Source: Authors (2023)

Lifelong learning is closely connected to companies' and businesses' evolving and changing needs, creating different student expectations and additional pressures on teachers. Learning pressures are emerging from continuous changes in job roles and needed skills that require significant investment to develop new and updated skills. The learning process is now understood as *"learning that happens throughout an individual's whole life."* According to the Economist (2017), the practicalities of lifelong learning are daunting, as education is failing to keep pace with technology, leading towards undesired outcomes like increasing levels of inequality and significant stress on learners as they try to keep updated and not fall behind. Further challenges emerge from specialised and discipline-specific learning environments associated with higher frustration, disengagement and dropout rates. Individuals with specialised training tend to withdraw from the labour force earlier than

those that have opted for a more general education, suggesting that individuals with more generic skills are more flexible and capable of adapting to changes. Some of the main challenges associated with a lifelong learning journey are identified as follows:

1. Significant levels of investment – free learning resources versus formal education
2. Time-consuming – there is an opportunity cost associated with the learning process that can result in significant stress levels as students try to find a balance between their professional commitments, family life balance and finding time to engage in learning activities.
3. Diverse student population with different experiences and levels of knowledge that can create frictions between learners.
4. Mature students' demands and expectations
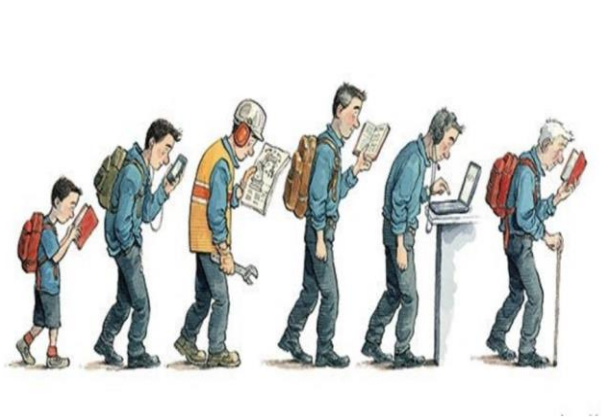5. Universal Design for Learning Costs and Implications

Figure 4: Lifelong Learning. Source: The Economist (2017)

The discussions might consider further engagement with the literature to provide the conceptual framework for this section, where we provide further insights on how learning and teaching must remain the central focal point of the student-centred learning space, not the technology or innovation itself. We propose the development of a more detailed analysis that keeps building on the material presented and that integrates the sections below:

- **Digital Transformation and Life-Long Learning – Effective Management of Digital Resources**
- **Student-Centre Pedagogical Assessment Model – Effective Study Environment**
- **Research Theoretical Framework - Bloom's updated taxonomy – Facilitating Students' Learning**
- **Application – Effective use of digital resources**

Indicator 1.5. Effective study environment (including online/in-person)	
Level 1 **(Basic)**	The study environment is shaped by 3 factors: Social, Cognitive and Teaching Presence (After Garrison et al 2018). This description explores the actors in each of the parts of education: teachers, researchers and students. *Social*: Place for students to place ideas & **identify with peers** in relation to teaching and learning material. *Cognitive*: Students **engage with tools** for divergent and convergent thinking. *Teaching Presence*: The teacher is required to **design the curriculum**, tasks and timelines
Level 2 **(Intermediate)**	*Social*: Place for students to place ideas & **project personal characteristics** and share and analyse alternative ideas. Clarify their thinking in collaboration with the peers on the project in relation to teaching and learning material. *Cognitive*: **Critical thinking develops**, through; exploration (divergence), integration (convergence) Students apply their knowledge to new situations/projects/assessments *Teaching Presence*: **Facilitating discourse** and shaping a constructive exchange of ideas
Level 3 **(Expert)**	*Social*: Place for students to **critique and develop** new ideas based on interactions with their peers. Provide valued insights into each others work. *Cognitive*: **Resolution** where the students apply new ideas and debate their solution *Teaching Presence*: **Facilitating discourse** and shaping a constructive exchange of ideas. Co-creation of knowledge.

Indicator 1.9. Facilitating students' learning	
Level 1 **(Basic)**	Students learning can be understood to be facilitated through scaffolding the learning through the different stages (Jacques 2008). **Gathering of Information,** the focus is on learning outcomes, familiarisation of learning resources, and learning tools assimilation of knowledge in field.
Level 2 **(Intermediate)**	**Knowledge contribution** this sees an Increase in complex multiple activities and a requirement for students to make contributions. Students can analyse, critique, etc. They can do more application of learning, and be more creative in their work.

Level 3 **(Expert)**	**Review & Reflect.** Students will be fully comfortable their field of study. They can take more responsibility for themselves and their working group, reflect on learning, look back through stages, critique learning experience. Prepare students for metacognition – learning about how they are learning. Becoming independent learners.

Indicator 1.12. Support in teaching/learning	
Level 1 **(Basic)**	Adopt a **Universal Design Approach** when developing all academic material: face to face, online, blended learning and hybrid material, to ensure the accessibility of that material to all. Provide **early** identification and recognition of additional learning support where necessary. The Universities' commitment to developing and supporting flexible learning, as a means of providing **multiple learning opportunities** for students, is set out in a strategic plan.
Level 2 **(Intermediate)**	Provide for **authentic assessment** in teaching and learning to provide the student with the opportunity to engage in real world problems (Dawson et al. 2021). Provide staff and students with the tools to analyse
Level 3 **(Expert)**	Develop **collaborative inclusive** teaching and learning processes to ensure students develop key professional and personal reflective skills. Create a student centred (inclusive) approach enhance learner engagement and the development of **self-critical reflection skills**.

Indicator 3.1. Appropriate and effective management of digital resources (selection, use, modification)	
Level 1 **(Basic)**	This is explored through the lens of competencies required by staff and students alike (Bustos-Contell, E. et al, 2022). **Access**ibility for all students and compatibility of software for staff and students alike. Familiarisation of tools and their application. Understanding the **appropriate** use of tools. Clear assessment schedule and learning outcomes visible via the online platform(s).

	Managerial – provision of objectives, setting of timelines and defining of rules and roles
Level 2 **(Intermediate)**	**Develop engagement with learners**: maintain contact communicate expectations, creating a learning community. Apply technology to the learning outcomes in the appropriate manner and analyse their efficacy. **Managerial** – Analyse, update and apply new where appropriate
Level 3 **(Expert)**	**Reflect and evaluate** the efficiency and efficacy of the teaching and learning. Develop the use of the software to match the learning outcomes. Train and support staff in their further education and knowledge of use of technology.

Indicator 3.2. Facilitating effective use of digital resources	
Level 1 **(Basic)**	Using Moule's ladder of 5 stages of support of digital resources we can understand their use and application for students (Moule 2007). Enabling student to **access** useful material to support learning – e.g. bibliographies Computer aided learning, **supporting learners to learn** – e.g. videos breaking learning into stages; interactive computer programmes.
Level 2 **(Intermediate)**	**Interaction** to support learners to create knowledge – creative thinking, problem-solving, analysing etc are important from here on up the ladder. At this rung it is through webinars, for example to encourage more dialogue and facilitate moving Learning moves from instructivist to constructivist.
Level 3 **(Expert)**	**Asynchronous communication** – discussion boards, emails etc, allowing learners to lead debate and discussion to lead to new knowledge. **Communities of practice** – active engaged learning through interactive collaboration, often drawing on all the other rungs. The supports required can increase as the learning environment increases in complexity, rather than, for example, an initial requirement to get online.

References:

Anderson, L.W. (Ed.), Krathwohl, D.R. (Ed.), Airasian, P.W., Cruikshank, K.A., Mayer, R.E., Pintrich, P.R., Raths, J., & Wittrock, M.C. (2001). A taxonomy for learning, teaching, and assessing: A revision of Bloom's Taxonomy of Educational Objectives (Complete edition). New York: Longman.

Bustos-Contell, E, Porcuna-Enguix L, Serrano-Madrid J, and Labatut-Serer, G. (2021). *The Role of e-Tutor Competencies in Postgraduate e-Learning Courses: Spotlight on Emotion Management Sustainability* 13, no. 17: 9716. https://doi.org/10.3390/su13179716

Churches, A. (2008). Bloom's Digital Taxonomy. A thorough orientation to the revised taxonomy; practical recommendations for a wide variety of ways mapping the taxonomy to the uses of current online technologies; and associated rubrics

Csikszentmihalyi, M. (1990). Flow: The psychology of optimal experience. New York: Harper & Row.

Dawson et al (2021) Authentic Feedback: supporting learners to engage in disciplinary feedback processes https://www.tandfonline.com/doi/epub/10.1080/02602938.2020.1769022

Garrison, D.R. Cleveland-Innes, M., and Vaughan, N. (2018) *The community of inquiry theoretical framework*, *Routledge Handbooks Online*. Routledge Handbooks Online. Available at: https://www.routledgehandbooks.com/doi/10.4324/9781315296135-6 (Accessed: January 20, 2023).

Jaques, D, and Salmon G (2008). *Learning in Groups: A Handbook for Face-to-Face and Online Environments*. London and New York: Routledge.

Kuhn, T. S. (1970). The structure of scientific revolutions (2nd ed.). Chicago: University of Chicago Press.

Moule, P (2007). "Challenging the Five-Stage Model for e-Learning: A New Approach." *Research in Learning Technology*, vol. 15, no. 1, 1 Apr. 2007, https://doi.org/10.3402/rlt.v15i1.10911.

Stanny, C. J. (2016). Reevaluating Bloom's Taxonomy: What measurable verbs can and cannot say about student learning. Education Sciences, 6(4). https://doi.org/10.3390/educsci6040037

The Economist (2017) Equipping People to stay ahead of technological change. Available at: https://www.economist.com/leaders/2017/01/14/equipping-people-to-stay-ahead-of-technological-change

Vygotsky, L. S. (1978). Mind in society (ed. by M. Cole, V. John-Steiner, S. Scribner, and E. Souberman). Cambridge, MA: Harvard University Press.

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Cyprus University of Technology Report on
Activity WP2.1

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Contents

1. Introduction

This report describes the work of the Cyprus University of Technology research team on **WP2.1 Overview of assessment frameworks** and **WP2.2 Development of the TDP4HE project framework**. The report is divided into two parts, each dedicated to an activity.

The people from Cyprus University of Technology who worked on these two tasks are Dr Elis Kakoulli Constantinou and Dr Stavroula Hadjiconstantinou.

2. Activity WP2.1. Overview of assessment frameworks

This task involved an overview of existing pedagogical assessment frameworks as well as digital assessment frameworks that can partially inform the creation of a new assessment framework on transformative digital pedagogies for academic teaching staff.

The Cyprus University of Technology team analysed the future perspectives of Higher Education through studying all the strategic documents of the state considering three perspectives: paradigm shifts in education, digital transformation and life-long learning. Interestingly, it was observed that as far as Cypriot Higher Education is concerned, there are no official strategic documents dedicated to Transformative Digital Pedagogies. Official state documents mainly refer to the government's future general strategic planning for digital transformation. This is the National Digital Strategy that sets forth the general vision for Cyprus to become a fit-for-the-future society and knowledge-based economy enabled by digital technologies (Deputy Ministry of Research Innovation and Digital Policy – Republic of Cyprus, 2020). However, there are some findings leading to the creation of frameworks based on research with regards to digital literacy, which are not officially related to the context of Cyprus Higher Education. Such a framework is The European Framework for Digitally Competent Educational Organizations (DigCompOrg Framework) (EU Science Hub, n.d.) Similarly, the European Commission's Higher Education initiatives promote the empowerment of universities as actors of change in the twin green and digital transitions (European Commission, n.d.).

At the institutional level there are no official guidelines regarding the use of technology in teaching. However, Universities in Cyprus use learning platforms (e.g. Moodle, Microsoft Office Teams, Blackboard, etc.), interactive boards and other types of hardware and software; therefore, academic staff is required to be familiar with their use. Universities in Cyprus offer

training on the use of technologies in education; however, these are only attended on a voluntary basis.

The findings from the study of the strategic documents as well as the situation in Cypriot Higher Education led to certain conclusions regarding paradigm shifts in education, digital transformation and life-long learning.

2.1 Paradigm shifts in education

Starting with paradigm shifts in education, three theories underlying the paradigm shift in education are the following: **Constructivism, Social Constructivism** & **Connectivism**.

Constructivism involves the study of a learner's own construction of knowledge (Dewey, 1896). Constructivists believe individuals learn best when they actively construct their own meaning of new content presented to them (Piaget, 1932). Learners process or construct new information by relating it to their experiences, attitudes and beliefs as a reference. Similar to cognitivism, constructivism emphasizes connecting new with existing information based on schemas but including learners' experiences and perceptions in the construction process (Applefield et al., 2001). The process of learning is thus an active construction rather than mere passive acceptance of information. In other words, students' learning is the process of establishing a new cognitive structure, exploring and communicating actively in the context created by teachers with the help of existing knowledge and experience. Instructors assume the role of facilitator through the provision of feedback and guidelines.

Constructivism was viewed as a rather social process by Vygotsky (1978), who highlighted the influence of the social context on the construction of knowledge (Powell & Kalina, 2009; Schunk, 2012), and thus he became the father of social constructivism.

With social constructivism, the seclusion and isolation of the individual, as this was experienced in the age of cognitivism, made way to the view of people as social beings. Social constructivism was initially a theory about the nature of science, according to which "science, scientific knowledge, and scientific practices are socially determined" (Detel, 2001, p. 14264). It denoted that individuals create or construct knowledge through the interaction of their past experiences and what they already know and the ideas, experiences and activities with which they come in contact, in other words their social surroundings (Richardson, 1997). According to social constructivism, learning is achieved through social interaction, and students learn best

when they collaborate and when they are engaged in problem-solving situations. Such activities provide them with opportunities to develop their problem-solving skills and creativity. Knowledge therefore is actively constructed and not passively received, and the teacher is a guide and co-explorer of knowledge instead of a knowledge provider. Social constructivism has influenced education in all levels and in various subjects including TE (Beck & Kosnik, 2006; Smith, 2001; Richardson, 1997; Richardson, 2005). Studies on social constructivism in education today are those of Knapp (2019), Lötter and Jacobs (2020) and Shah (2022).

Connectivism was introduced by George Siemens (Siemens, 2005). Connectivism is a theory of learning which stresses the influence of technology and networking in the discovery of knowledge. According to Siemens (2005, p. 5), "[l]earning can reside outside of ourselves". As Kop and Hill (2008, p. 1) suggested, for Siemens "knowledge is actuated through the process of a learner connecting to and feeding information into a learning community". Such an approach to learning focuses on networking and understanding of where to look for knowledge rather than receiving ready-made information by the course facilitator. Like social constructivism, connectivism does not view the process of learning as an individualistic process. Connectivism rather supports that knowledge resides in networks. Some recent publications on Connectivism are those of Downes (2022), Sozudogru et al. (2019) and (Keller, 2019).

In Cyprus there is The Cyprus Agency of Quality Assurance and Accreditation in Higher Education (CYQAA). Through its activities, it safeguards every student's right to study in programs that meet European quality standards and promotes synergies between institutions. It supports new models of university education, based on transnational joint programs that enhance the experience and expertise of academics and students in innovative approaches, research, teaching and practical training (The Cyprus Agency of Quality Assurance and Accreditation in Higher Education, n.d.).

2.2 Digital transformation

Digital transformation is a process that aims to improve an entity by triggering significant changes to its properties through combinations of information, computing, communication, and connectivity technologies. Itis a process wherein organizations respond to changes taking place in their environment by using digital technologies to alter their value creation processes. For

this process to be successful and lead to positive outcomes, organizations must account for a number of factors that can hinder the execution of their transformation.

Digital transformation affects the whole organization and its ways of operating and goes beyond digitalization — the changing of simple organizational processes and tasks. For instance, digital transformation in the healthcare sector is manifested by broad and deep use of IT that fundamentally changes the provision of healthcare services (Verhoef et al., 2021). The use of IT is transformative and leads to fundamental changes to existing business processes, routines and capabilities, and allow healthcare providers to enter new or exit current markets. Moreover, digital transformation utilizes digital technologies to enable interactions across borders with suppliers, customers and competitors (Verhoef et al., 2021). Hence, digital technologies can help to attain a competitive advantage by transforming the organization to leverage existing core competences or develop new ones. Therefore, digital transformation is inherently linked to strategic changes in the business model as a result of the implementation of digital technologies (Verhoef et al., 2021).

Digital transformation is seen as a change of paradigm and sometimes labelled as a technological revolution (Mergel et al., 2019). These innovative technological developments outside the public sector are changing citizens' expectations of governments' ability to deliver high-value digital services. However, even if expectations are high, digital transformation is seen mostly as a cultural change that has to happen inside the organization and the literature so far has not provided many details on how to orchestrate this transformational change.

Cyprus Higher Education embraces digital transformation, as described above. This is dictated by the National Digital Strategy (Deputy Ministry of Research Innovation and Digital Policy – Republic of Cyprus, 2020), The European Framework for Digitally Competent Educational Organizations (DigCompOrg Framework) (EU Science Hub, n.d.), the European Commission's Higher Education initiatives (European Commission, n.d.), as well as The Cyprus Agency of Quality Assurance and Accreditation in Higher Education (CYQAA) guidelines.

2.3 Lifelong Learning

Through the 1960s and 1970s there was an expansive amount of theory building in the field of adult education. During that time, Finger (1995) argued that three main paradigms emerged – lifelong education, as a framework for international growth and development endorsed by

UNESCO (United Nations Educational, Scientific and Cultural Organization), radical education advanced by critical scholars such as Paulo Freire which addressed social justice issues and challenged existing social and educational structures, and work related to Malcolm Knowles's concept of andragogy as a framework for adult education that reinforced the self-directed nature of adults as independent learners. Just as scholars through the 1980s and 1990s spent innumerable hours debating the parameters of the field in terms of understanding the overlapping terms of lifelong education, adult education, lifelong learning, and continuing education, in the early 21st century many others explored language that attempted to define globalisation and altered societal structures, such as the 'post-Fordist economy', 'late modernity' and the 'knowledge economy' (Dyke, 2009; Ng & Shan, 2010). Tied in with these discussions are concepts addressing aspects of unpredictability and fluidity generated by the accelerated pace of social change, like 'liquid modernity' (Bauman, 2012) and the 'risk society' (Beck & Levy, 2013). As Dyke (2009) states, 'a task for education is to enable students to make more knowledgeable decisions in a world of rapidly changing and often contradictory information' (p. 292). These debates are ongoing within lifelong education, as scholars try to make sense of the rise in neoliberal influences that have expanded across the globe.

Maren Elfert (2018) refers to the way lifelong learning has been emaciated and today bears little resemblance to its original meanings. She asserts that, in the European Union (EU), "Lifelong learning began as a radical idea with a strong political dimension, which asked questions about justice and equality, the distribution of resources and the exercise of power" (, Valdés-Cotera, p. 215). It has instead become de-politicized and "transformed" to make it ft into the agenda of the marketplace, turning it into a euphemistic label for a neoliberal worldview, in which the individual is held responsible to invest in her human capital, in the name of a false notion of freedom (ibid.). Ever since a number of policymaking entities and other international institutions such as the Organisation for Economic Co-operation and Development (OECD) and the EU have made lifelong learning a policy priority and an instrument for supporting economic development there has been a confict about the precise meaning of the term lifelong learning. The original concept of lifelong education supported by the United Nations Educational, Scientifc and Cultural Organization (UNESCO) in the 1960s emerged from an "egalitarian and democratic spirit inherent in the idea of education as a human right" (Elfert, 2019). It reached its fullest expression in UNESCO's work on the concept of lifelong learning, represented by two publications, namely Learning to be … (Faure et al. 1972) and Learning: The Treasure Within … (Delors et al. 1996) (Elfert, 2019). But this spirit has

changed: UNESCO's utopian and citizenship-oriented vision of lifelong learning has largely been supplanted by more economics-driven proposals for education put forward by other international organisations (ibid., p. 540).

Cyprus follows the strategy of "Europe 2020" on Lifelong Learning which focuses on development, innovation and education. Some of these goals include: Minimizing the percentage of early school leavers, empowering people through lifelong skills development to participate in the labor market (Higher Education - Cyprus Ministry of Education, Sport and Youth, n.d.).

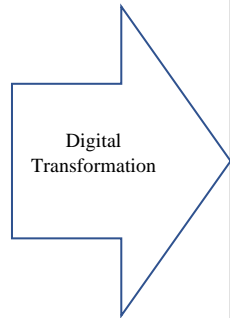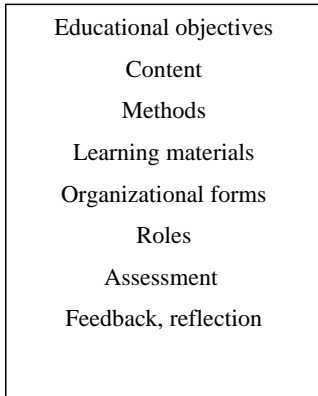The "National Strategy for Lifelong Learning" focuses on four priorities:

- Access and participation for all in Lifelong Learning
- Infrastructure for Lifelong Learning
- Research and Development
- Effective Governance

For the successful implementation of the National Strategy for Lifelong Learning the following are necessary: a) the creation of appropriate structures for absorption of EU funds and adequate staffing of various departments with the necessary staff and b) the collaboration between all relevant services and stakeholders (Higher Education - Cyprus Ministry of Education, Sport and Youth, n.d.).
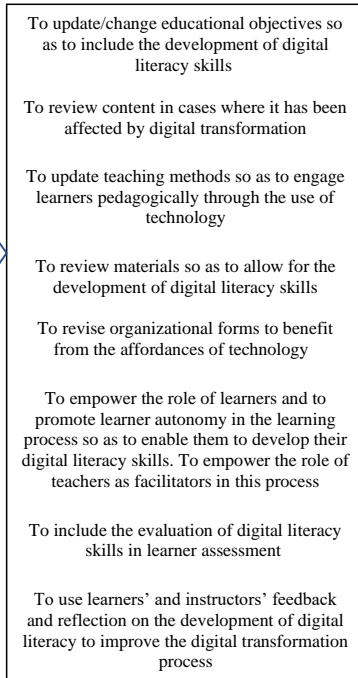
2.4 The Cyprus University of Technology research team's suggestion for Digital Transformation

Following is a diagram which shows a list of core elements necessary for Tranformative Pedagogy according to the literature. Some of these elements can remain unchanged while others need to be transformed.

Traditional Approach		**Transformative Approach**
Educational objectives Content Methods Learning materials Organizational forms Roles Assessment Feedback, reflection	Digital Transformation →	To update/change educational objectives so as to include the development of digital literacy skills To review content in cases where it has been affected by digital transformation To update teaching methods so as to engage learners pedagogically through the use of technology To review materials so as to allow for the development of digital literacy skills To revise organizational forms to benefit from the affordances of technology To empower the role of learners and to promote learner autonomy in the learning process so as to enable them to develop their digital literacy skills. To empower the role of teachers as facilitators in this process To include the evaluation of digital literacy skills in learner assessment To use learners' and instructors' feedback and reflection on the development of digital literacy to improve the digital transformation process

2.5 The Cyprus' Perspective for Pedagogical Competence

Below is the Cyprus perspective of the framework of pedagogical competence of academic staff. The framework was based on frameworks of other countries (Canada, the UK, Ireland, Denmark and Estonia).

Pedagogical Competence – The perspective of Cyprus
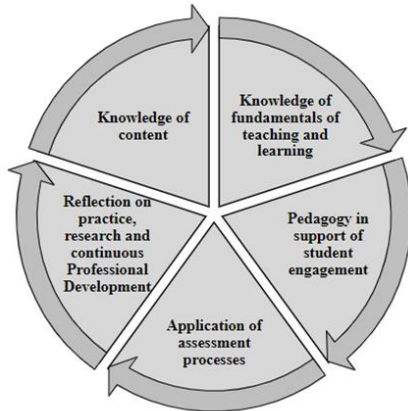
2.6   Criteria and indicators for Transformative Digital Pedagogical Competence Framework

All 5 partners worked together for the development of criteria and indicators for the Transformative Digital Pedagogical Competence (TDPC) Framework. Here are the criteria and indicators on which our first version of TDPC Framework was based:

OFFERED CRITERIA for Transfromative Digital Pedagogical Competence

Criteria of Transformative Digital Pedagogical Competence	Indicators
1. Learning and Teaching	1.1. Individual differences of students, personalization
	1.2. Goals and learning outcomes
	1.3. Study course content, materials
	1.4. Teaching methods, models, strategies, learning dynamics
	1.5. Assessment (types, frequency) and feedback
	1.6. Reflection
2. Research – innovative	2.1. Continuous self/professional development
	2.2. Organizational communication
	2.3. Professional collaboration/ networking/ exchange of ideas/ good practices
	2.4. Professional engagements
	2.5 Reflection and improvements
3. Digital	3.1. Selection of digital resources
	3.2. Creation and modification of digital resources
	3.3. Use, management, protection and sharing of digital resources
	3.4. Empowering learners for effective use of digital resources
	3.5. Facilitating learner's digital competence

2.1. Continuous self/professional development in research/innovations

2.2. Effective professional practice (collaboration/ communication/ networking/ exchange of ideas/ good practices/ engagement/creativy/ reflection/ comercialization)

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OFFERED CRITERIA for Transfromative Digital Pedagogical Competence

Criteria of Transformative Digital Pedagogical Competence	Indicators
1. Learning and Teaching	1.1. Individual differences of students, personalization
	1.2. Goals and learning outcomes
	1.3. Study course content, materials
	1.4. Teaching methods, models, strategies, learning dynamics
	1.5. Assessment (types, frequency) and feedback
	1.6. Reflection
2. Research – innovative	2.1. Continuous self/professional development
	2.2. Organizational communication
	2.3. Professional collaboration/ networking/ exchange of ideas/ good practices
	2.4. Professional engagements
	2.5 Reflection and improvements
3. Digital	3.1. Selection of digital resources
	3.2. Creation and modification of digital resources
	3.3. Use, management, protection and sharing of digital resources
	3.4. Empowering learners for effective use of digital resources
	3.5. Facilitating learner's digital competence

3.1. Appropriate and effective management of digital resources (selection, use, modification)

3.2. Facilitating effective use of digital resources

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References:

Arpentieva M.R..; Retnawati H.; Akhmetova T.A.; Azman M.N.A.; Kassymova G.K. (2021). Constructivist approach in pedagogical science. *Challenges of Science*. Issue IV, 2021, pp. 12-17. https://doi.org/10.31643/2021.02

Bauman, E. B. (2012). *Game-based teaching and simulation in nursing and health care*. Springer Publishing Company.

Beck, U., & Levy, D. (2013). Cosmopolitanized nations: Re-imagining collectivity in world risk society. *Theory, Culture & Society*, *30*(2), 3-31.

Burhanuddin, N., Ahmad, N., Said, R., & Asimiran, S. (2021). Learning Theories: Views from Behaviourism Theory and Constructivism Theory. *International Journal of Academic Research in Progressive Education and Development, 10*(1).

Delors, J., et al. (1996) Learning: The treasure within. Report to UNESCO of the International Commission on Education for the Twenty-frst Century. Paris: UNESCO.

Deputy Ministry of Research Innovation and Digital Policy – Republic of Cyprus. (2020). *Digital Cyprus 2025*. Retrieved November 2, 2022, from https://www.dmrid.gov.cy/dmrid/research.nsf/planning01_el/planning01_el?OpenDocument

Downes, S. (2022). Connectivism. *Asian Journal of Distance Education, 17*(1), 58–87.

Dyke, M. (2009). An enabling framework for reflexive learning: Experiential learning and reflexivity in contemporary modernity. *International Journal of Lifelong Education*, *28*(3), 289-310.

Elfert, M. (2019). Lifelong learning in Sustainable Development Goal 4: What does it mean for UNESCO's rights-based approach to adult learning and education?. *International Review of Education*, *65*(4), 537-556.

EU Science Hub. (n.d.). *DigCompOrg Framework*. Retrieved November 2, 2022, from https://joint-research-centre.ec.europa.eu/european-framework-digitally-competent-educational-organisations-digcomporg/digcomporg-framework_en

European Commission. (n.d.). *Higher education initiatives*. Retrieved November 3, 2022, from https://education.ec.europa.eu/education-levels/higher-education/about-higher-education

Faure, E., Herrera, F., Kaddoura, A. R., Lopes, H., Petrovsky, A. V., Rahnema, M. & Ward, F. C. (1972). Learning to be: The world of education today and tomorrow. Paris: UNESCO/Harrap.

Finger, M. (1995). Adult education and society today. *International Journal of Lifelong Education*, *14*(2), 110-119.

Higher Education - Cyprus Ministry of Education, Sport and Youth. (n.d.). *Lifelong Leaning*. Retrieved November 3, 2022, from https://www.highereducation.ac.cy/index.php/en/europaika-themata/lifelong-learning

Keller, D. (2019). Becoming Relevant Again: Applying Connectivism Learning Theory to Today's Classrooms. *Critical Questions in Education, 10*(2), 107–119. https://www.edx.org/

Knapp, N. F. (2019). The Shape Activity: Social Constructivism in the Psychologyy Classroom. *Teaching of Psychology, 46*(1), 87–91. https://doi.org/10.1177/0098628318816181

Levitt, H. M. (2021). *Essentials of critical-constructivist grounded theory research*. American Psychological Association.

Lötter, M. J., & Jacobs, L. (2020). Using smartphones as a social constructivist pedagogical tool for inquiry-supported problem-solving: an exploratory study. *Journal of Teaching in Travel and Tourism, 20*(4), 347–363. https://doi.org/10.1080/15313220.2020.1715323

Mergel, I., Edelmann, N., & Haug, N. (2019). Defining digital transformation: Results from expert interviews. *Government Information Quarterly, 36*(4), 101385. https://doi.org/10.1016/j.giq.2019.06.002

Ng, R., & Shan, H. (2010). Lifelong learning as ideological practice: An analysis from the perspective of immigrant women in Canada. *International Journal of Lifelong Education*, *29*(2), 169-184.

Shah, M. A. (2022). Teachers as Reflective Practitioners : From Individualism to Vygotskian Social Constructivism. *Alberta Journal of Educational Research, 68*(3), 297–307.

Sozudogru, O., Altinay, M., Dagli, G., Altinay, Z., & Altinay, F. (2019). Examination of connectivist theory in English language learning: The role of online social networking tool. *International Journal of Information and Learning Technology, 36*(4), 354–363. https://doi.org/10.1108/IJILT-02-2019-0018.

The Cyprus Agency of Quality Assurance and Accreditation in Higher Education. (n.d.). *Quality Policy Statement*. Retrieved November 3, 2022, from https://www.dipae.ac.cy/index.php/en/cyqaa-en/quality-policy-statement-en

Valdés-Cotera, R. (2019). [Review of UNESCO's Utopia of lifelong learning: An intellectual history. Routledge Research in Lifelong Learning and Adult Education series, by M. Elfert]. International Review of Education / Internationale Zeitschrift Für Erziehungswissenschaft / Revue Internationale de l'Education, 65(4), 667–669. http://www.jstor.org/stable/45201207

Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Qi Dong, J., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research*, 122(November 2019), 889–901. https://doi.org/10.1016/j.jbusres.2019.09.022

Voon, X., Wong, L., Looi, C., & Chen, W. (2020). Constructivism-informed variation theory lesson designs in enriching and elevating science learning: Case studies of seamless learning design. *Journal of Research in Science Teaching, 57*(10), 1531-1553.