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EUROPEAN UNIVERSITY OF TECHNOLOGY

TDP4HE

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REPORT

WP2: Theoretical and empirical framework of transformative digital pedagogical competences

WP2.2 Development of the TDP4HE project framework

Coordinator: RTU, Latvia

Partners: TECHNOLOGIKO PANEPISTIMIO KYPROU (E10208024 - CY),

Author of report: Olga Vindača

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INTRODUCTION

The purpose of this report is to produce the theoretical framework for the assessment of transformative digital pedagogical competence of academic staff, based on the results gained within the activity WP2.1. of the overview of the existing assessment frameworks. As the purpose of activity WP2.2. is to produce a theoretical assessment framework that will be used by the academic community in order to self-assess their competence in transformative digital pedagogies. This framework would be improved and refined after the insights yielded from focus groups with academic teaching staff organised in each of the 5 partner Universities.

An assessment framework is a structured tool that individuals like academic staff and students or higher education institutions will be able to use to evaluate the performance, progress, and areas of improvements. By ensuring a systematic approach to assess core criteria and indicators specified for the transformative digital pedagogical competence of academic staff in higher education institutions.

Academic staff has to be equipped with different skills and competences, while there is no clear concept for pedagogical competence of academic staff. Therefore, there is a need to specify the concept of academic staff of higher education institution and then to define the updated concept of pedagogical competence of academic staff.

In order to achieve a comprehensive understanding of specified criteria and indicators the three mastery levels will be specified for progress check and planning. As without the detailed analyses of the current situation it is complicated to plan further development. Besides this the cyclicity nature of pedagogical competence is specified.

1. Concept of Academic Staff

The three dimensions have been specified for the concept of academic staff formation: international, European and Latvia.

According to International Standard Classification of Education the academic staff is specified as personnel whose primary assignment is instruction, research, or public service. Moreover, this includes staff personnel who hold an academic rank with titles such a professor, associate professor, assistant professor, instructor, lecturer, or the equivalent of any of these academic ranks. Additionally, the category includes personnel with other titles such as dean, director, associate dean, assistance dean, chair or head of the department, but in cases if their principal activity is instruction or research (UNESCO/OECD/Eurostat, 2001).

While according to the documents of European Commission the base definition of the concept of academic staff is directly linked with teaching and learning, but it can also be fragmented and segmented according to the employment status, rank, type of main activities: research, teaching/learning, management and leadership. As the educational process becomes more complex and specified, so the objectives and the tasks for academic staff have to be transformed (European Commission/EACEA/Eurydice, 2017).

If to speak about Latvia, then Education Law of the Republic of Latvia specifies the educator/teacher as a natural person who has the education and the professional qualification specified in the state legislation and participates in the implementation of an educational program at an educational institution (Izglītības likums, 1998). While academic staff of a higher education institution is specified as employees of the relevant higher education institution elected to academic positions (Augstskolu likums, 1995). Thus, the definition of the concept of academic staff includes such categories as: type of employment (status, rank, elected position) and type of main activity (teaching/learning, research, instruction, management and/or leadership). So, there is a need to clarify main functions, rights and duties, as well as further perspectives and career paths. Because this is directly linked with the requirements concerning further professional mastering.

In international dimension it is specified that higher education is directly linked with growth, future job and career as well as competitiveness and has the potential to serve as a catalyst for economic transformation. The higher education system sits at the apex of the education systems, supporting the lower levels of education and preparing professional and skilled employees, and serving as an incubator for a research. It can serve the community by contributing knowledge and advanced skills as well as basic competencies and research.

Knowledge plays a growing role in the global economy, driving economic growth and productivity.

Higher education fulfills multiple roles that go beyond educating students. Experts and field specialists often identify three distinct but interrelated missions/functions, that are: teaching and learning; research; community engagements (The International Bank for Reconstruction and Development/ The World Bank, 2017).

So, the main responsibilities of academic staff are not only to conduct teaching/learning and research work, but also to be involved in management and leadership activities, implementing innovative transformation. Based on the in-depth analysis of the strategic documents the concept is described on Figure 1.

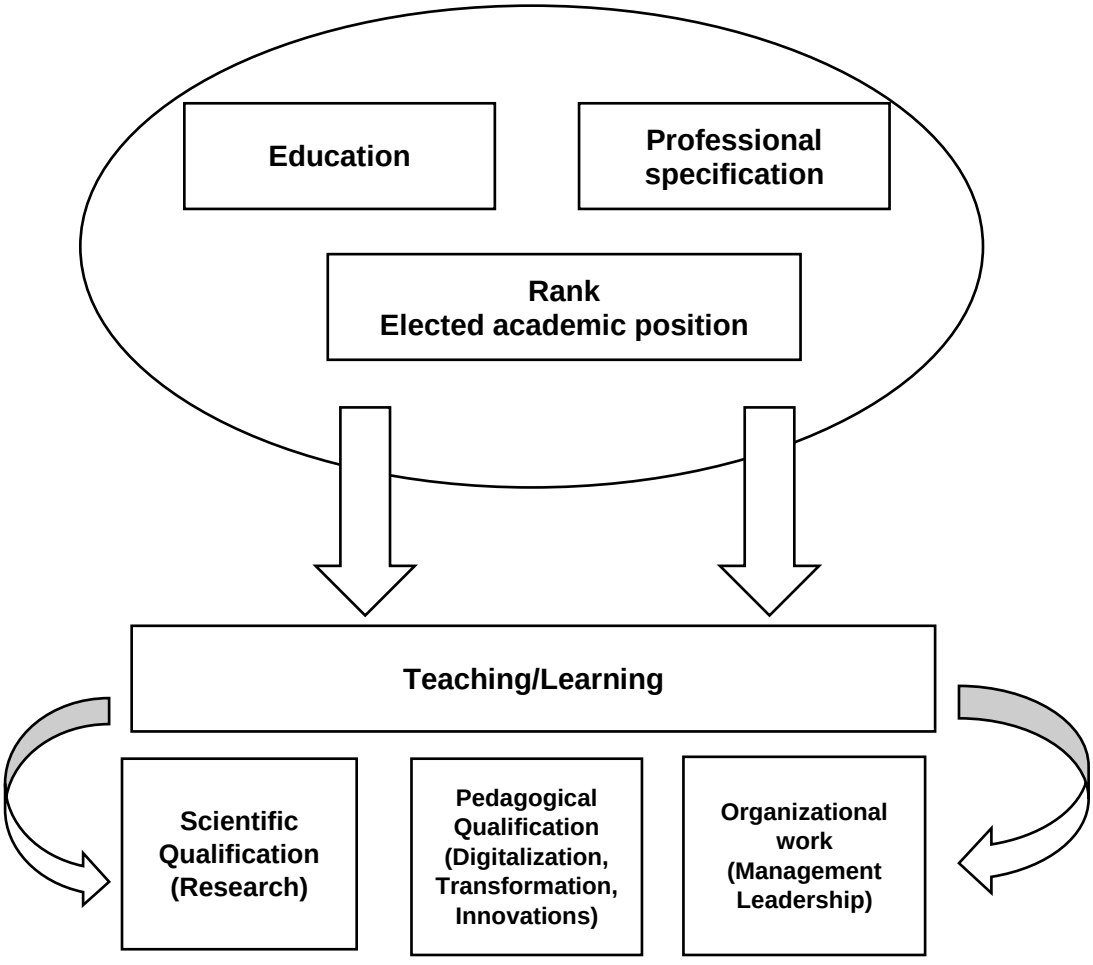

Figure 1 Concept of Academic Staff of Higher Education Institution (Vindača, Ļubkina, 2022)

So, the main responsibilities of academic staff are not only to conduct teaching/learning and research work, but also to be involved in management and leadership activities,

implementing innovative transformation. Proficient and committed academic staff is a necessity of higher education institution to provide high-quality education and scientific excellence. That means academic staff should be proficient both in the particular discipline and in pedagogy, while the pedagogical competence is not often defined and clearly structured for the evaluation and assessment.

To specify the concept of academic staff there is one more aspect that has to be concerned – educators with pedagogical background and without pedagogical background, the updated concept of the present article is specified for those without pedagogical background.

2. Concept of Pedagogical Competence

In order to establish and examine the key principles for pedagogical competence formation, there is a need to clarify the key concept of pedagogical process, where the role of each involved element is indicated. The traditional triangle of student, teacher and content has been enlarged by the influence of external and internal study environment (see Figure 2).

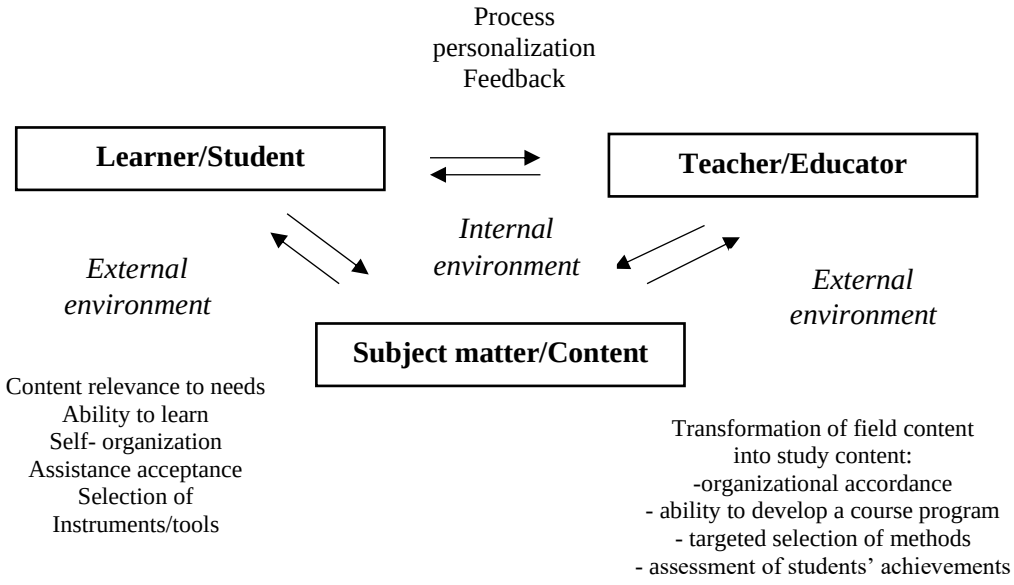

Figure 2 Key Concept of Pedagogical Process (Žogla, 2018)

As by analyzing the interdependence between the key components of pedagogical process, presenting the development of pedagogical science, the direction of which has been changed from external influences on the learning process to the understanding of the complex nature of learning (Žogla, 2018). Thereby, the study environment as internal as external has a fundamental influence on the pedagogical process and has to be taken into consideration for pedagogical competence formation and mapping. Moreover, three types of interactions: student- educator; student -content and educator -content are interconnected and taken place in both directions, where the interconnections are formed taking into consideration the specified goals and tasks.

Covid-19 pandemic has triggered a worldwide shift towards online learning and teaching, therefore the transformation of the pedagogical process has taken place. This idea has been already investigated before the pandemic, as teaching/learning is considered to be a cyclic process, providing the inclusion of new innovations, modifying the content of teaching,

changing teaching strategies, developing new teaching materials, planning updates of competences, etc. (Daniela, 2019).

For the current research the traditional approach of competence formation will be used where three dimensions nature is integrated, consisting of knowledge, skills and attitudes components (Maslo, Tiļļa, 2005). While the core definition of pedagogical competence is formed by three key components: learning of students -where the academic staff supports and facilitates for promoting best results; progress – assessment according to the defined goals and framework; continuous development – the ability to develop own competencies for further personal professional development. There is a need to underscore the formation of direct linkage between learning process, the achieved progress and further development in view of definition of pedagogical competence (Ed. Ryegard, Apelgren, Olsson, 2010). While the overview of pedagogical competence definition is presented in Table 1.

Table 1

Comparison of Pedagogical Competence Concepts

Author	Core Elements of Pedagogical Competence
Suciu, Mata (2011)	educational achievement/ success/ efficiency; professional development; societal change
Febrianis, Muljono, Susanto (2014)	organization of the study material; usage of pedagogical knowledge and skills; students' motivation; creativity and performance of educator
Aimah, Ifadah (2017)	teaching/learning process; interaction; educators' performance; the ability of planning; the appropriate choice of method and media; active practicing and collaboration; the progress of students' learning; professional development
Sahana (2018)	Performance; knowledge and skill in teaching/learning; capability to manage the teaching and learning process
Novianti, Nurlaelawati (2019)	Management of students' learning; understanding the learner; designing, and implementing learning outcomes; ability of teaching/learning; continuous development
Fakhrutdinova et al. (2020)	pedagogical activity; pedagogical communication; the personality of the educator; a set of knowledge, experience, skills and possession of pedagogical technology; student-centered teaching/learning
Yue, Li, Yu-Sheng (2022)	pedagogical content knowledge; educators' content knowledge; general pedagogical knowledge; technological pedagogical knowledge

3. Pedagogical Competence Mapping

A case in point is the huge number of existing models of pedagogical competence. Therefore, those underpinning the above-described concept of pedagogical competence definition have been specified.

Swedish Perspective of Pedagogical Competence (see Figure 2) shows the interrelation of theoretical knowledge and pedagogical practice with teaching skills and pedagogical competence. The process is spiral-shaped as after going through each cycle a higher level is achieved and the development takes place. The background of the model is formed from the Kolb's Learning Cycle that is analyzed further.

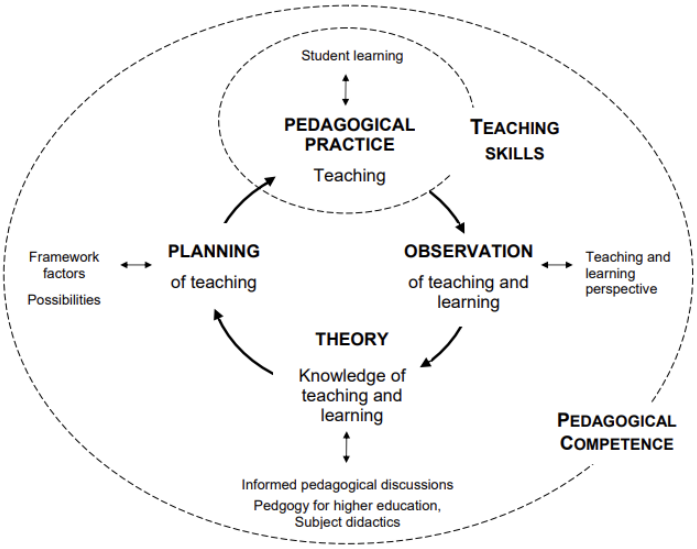

Figure 2. A Swedish Perspective of Pedagogical Competence (Ed. Ryegard, Apelgren, Olsson, 2010)

According to A. Ryegard, K. Apelgren and Olsson T. pedagogical competence refers to educational and teaching qualifications. They point out that during the assessment procedure of pedagogical competence, the quality of teaching should be the primary consideration. Their illustrated concept of pedagogical competence shows the complicity of it, while separately covering teaching skills and pedagogical competence. The prerequisite of both general and subject-specific knowledge is specified. The idea of pedagogical connection with the research within the subject is highlighted as well as continued development of pedagogical competence is required (Ryegard, Apelgren, Olsson, 2010).

For the current research the idea of academic staff without pedagogical background has been mentioned, therefore the offered model by Fakhrutdinova, Ziganshina, Mendelson and

Chumarova (2020) reflects the core meaning with three types of competences: key competences, general subject competences and subject competences (see Figure 3).

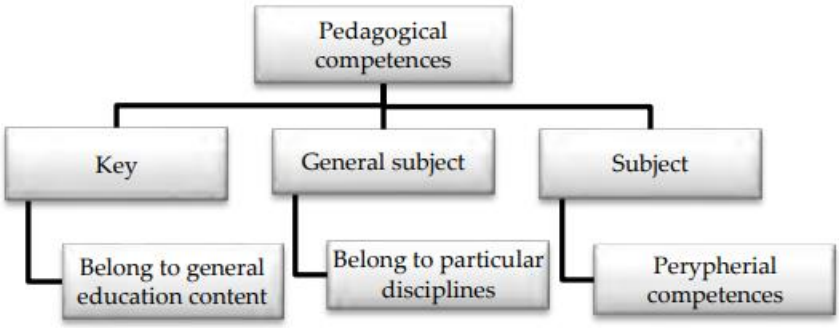

Figure 3. General Structure of Pedagogical Competence of Academic Staff (Fakhrutdinova et al., 2020)

Moreover, for key domains listing there is a need to point out the didactical components for the concept of pedagogical competence. The didactical model, offered by Tallinn University of Technology will be used (see Figure 4.). The offered framework covers seven key stages: firstly, starting with goals and learning outcomes definition; secondly, taking into account individual differences of students; thirdly, creating and designing course content according to the defined goals and specified individual differences; fourthly, taking into consideration the learning environment and information and communication technologies; fifthly, choosing the appropriate teaching methods, models and strategies; sixthly, evaluating and choosing the assessment and feedback methods; finally, basing on the reflection further improvement planning as for teaching as for learning.

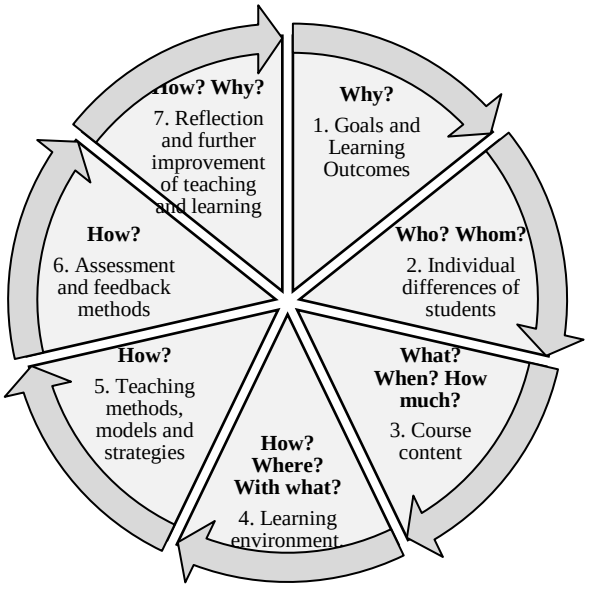

Figure 4 Pedagogical Competence Didactical Framework (Ruutmann, 2020)

Further, the comparative analyses of existing frameworks of pedagogical competence of six European countries have been conducted, using Didactical Framework as a background. The following countries have been specified: Latvia (LV), Lithuania (LT), Estonia (EE), Denmark (DK), the United Kingdom (UK) and Ireland (IE). The generalized matrix of pedagogical competence has been offered, first in International and European perspective (see Table 2), then is the perspective of the Baltic states (see Table 3), where the 1st criteria is Learning and assessment.

Table 2

Learning and Assessment Criteria Matrix in International and European Perspective

Criteria	Canadian Perspective	Danish Perspective	The UK Perspective	Irish Perspective
1. Learning and Assessment		Knowledge of teaching and learning	Core knowledge	Personal development: teaching/ learning
1.1. Individual differences of students, personalization	Involvement of students	Personalization, responsibility	Professional values	Communication and dialogue in teaching/ learning
1.2. Goals and learning outcomes	Fundamentals of learning; Engaging	Knowledge of teaching and learning	Areas of Activity	Professional Knowledge and skills in teaching/ learning
1.3. Study course content	Fundamentals of learning; engaging	Knowledge of teaching and learning	Core knowledge	Professional Knowledge and skills in teaching/ learning
1.4. Teaching methods, models and strategies	Fundamental and active learning	Knowledge of teaching and learning	Core knowledge	Professional Knowledge and skills in teaching and learning
1.5. Effective study environment	Fundamental of learning	Practice	Area of Activity	Professional Knowledge and skills in teaching and learning
1.6. Assessment and feedback	Assessment of students learning	Knowledge sharing and peer observation	Core knowledge	Professional Knowledge and skills in teaching and learning
1.7. Reflection	Assessment of students learning	Practice and reflection	Areas of Activity	Professional Knowledge and skills in teaching and learning

Table 3

Learning and Assessment Matrix in Perspective of the Baltic States

Criteria	Estonian Perspective	Lithuanian Perspective	Latvian Perspective
1. Learning and Assessment	Teaching competence	Didactical Competence	Pedagogical qualification
1.1. Individual differences of students, personalization	Teaching competence	Personal competence	Pedagogical qualification
1.2. Goals and learning outcomes	Teaching competence	Discipline-related competence	Pedagogical qualification
1.3. Study course content	Teaching competence	Discipline-related competence	Pedagogical qualification
1.4. Teaching methods, models and strategies	Teaching competence	Didactical competence	Pedagogical qualification
1.5. Effective study environment	Teaching competence	Didactical competence	Pedagogical qualification
1.6. Assessment and feedback	Teaching competence	Didactical competence	Pedagogical qualification
1.7. Reflection	Teaching competence	Personal competence	Pedagogical qualification

The same approach is used for the comparative analyses of one additional criteria: research-innovative, firstly, in international and European perspective (see Table 4); secondly, in perspective of the Baltic states (see Table 5).

Table 4

Research-Innovative Criteria Matrix in International and European Perspective

Criteria	Canadian Perspective	Danish Perspective	The UK Perspective	Irish Perspective
2. Research - innovative		Pedagogical development	Professional values	Personal development: teaching and learning
2.1. Professional engagements	High impact practice, experience	Knowledge sharing and peer supervision	Areas of Activity	Professional development in teaching and learning
2.2. Organizational communication	High impact practice, experience	Knowledge sharing and peer supervision	Areas of Activity	Communication and dialogue in teaching and learning
2.3. Professional collaboration	High impact practice, experience	Knowledge sharing and peer supervision	Areas of Activity	Communication and dialogue in teaching and learning
2.4. Reflective practice	High impact practice, experience	University pedagogy programs	Professional values	Professional development in teaching and learning
2.5. Continuous self/professional development	High impact practice, experience	Responsibility Ongoing development	Areas of Activity	Personal development: teaching and learning

Table 5

Research-Innovative Criteria Matrix in Perspective of the Baltic States

Criteria	Estonian Perspective	Lithuanian Perspective	Latvian Perspective
2. Research - innovative	Research competence	Not specified separately (under didactical competence and personal competence)	Scientific qualification
2.1. Professional engagements	Research competence		Scientific qualification
2.2. Organizational communication	Research competence		Scientific qualification
2.3. Professional collaboration	Research competence		Scientific qualification
2.4. Reflective practice	Research competence		Scientific qualification
2.5. Continuous self/professional development	Research competence		Scientific qualification

Basing on the conducted review of comparative analyses and existing models of pedagogical competence the profile of transformative digital pedagogical competence has been offered and is presented in Figure 5.

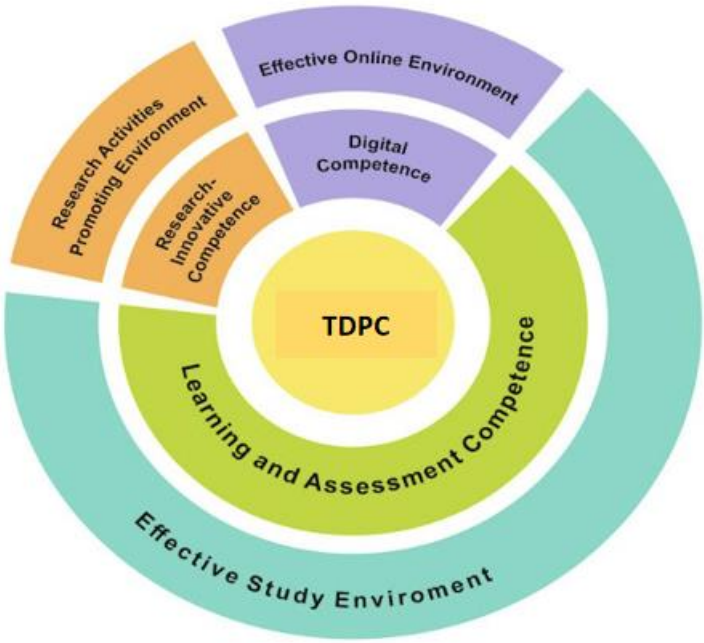

Figure 5. Profile of Transformative Digital Pedagogical Competence of Academic Staff (Vindača, Ļubkina, 2022)

So, basing on the concepts of various authors, concerning pedagogical competence (Suciu, Mata, 2011; Febrianis, Muljono, Sustanto, 2014; Aimah, Ifadah, 2017; Sahana, 2018; Novianti, Nurlaelawati, 2019; Fakhrutdinova et al., 2020; Yue, Li, Yu-Sheng, 2022) the prominent criteria of TDPC is formed by three criteria:

- **learning and assessment** (general education content) for effective and excellence pedagogical work in higher education institutions, answering the core didactic questions: why, whom, what, when, how much, with what and how to organize learning and assessment process (Logvinov, 2003), additionally considering individual differences of students and learning environment (Ruutmann, Sell, Lohmus, 2018);

- **research -innovative** (responding to the updated trends, innovations, challenges, etc.), considering multidisciplinary and multidimensionality (Illeris, 2013), and the concept of academic staff without pedagogical background, where research and innovations of the specified field are primary tenets (Voss, Gruber, 2006);

- **digital** (responding to the digital transformation and following transformative digital learning context), the whole study process of higher education institutions should be transformed (Uvarov, Van, Kan et al., 2019), as transforming digital learning is the process of individualized, lifelong spontaneous or planned technology-enhanced learning, changing and updating of educational results, content, methods and organizational forms, adopting them to the quickly evolving digital environment, including physical and philosophical change to meet growing demands of learners/students to achieve rich intellectual property by defining new perspectives and adopting personal worldview in according to value-created learning (Vindaca, Lubkina, 2020).

So, the didactical framework for the assessment of TDPC is developed, considering the necessity of academic staff without pedagogical background. That means the professionals of the field have to improve learning/teaching and assessment more in comparison with research – innovative and digital that forms their common work.

The offered proportion makes almost more than half for the learning/teaching and assessment, while it can be adopted according to the current needs. Moreover, the effective environment plays an important role in the continuous development and improvement of the mentioned competences as a part of pedagogical competence profile. The considerable attention has to be paid for the previous experience forming the specified competences and be repeated in cycle nature.

4. Cycle Nature for Competence Assessment

The cycle nature of competence formation is specified, based on experimental learning idea of Kolb (1984) with four stage, namely concrete experience, reflective observation, abstract conceptualization and active experimentation (Kolb, 1984), while in the context of competence formation (wvdevelopment.org, n.d.) it is updated and competence development cycle is offered for TDPC (see figure 6).

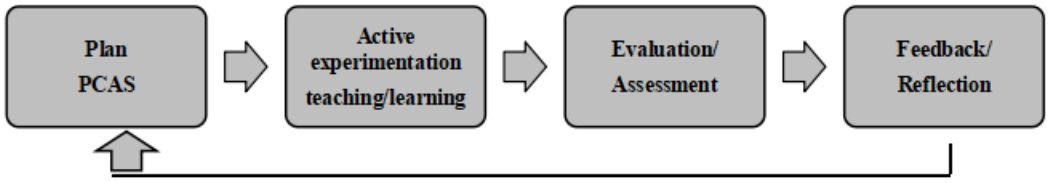

Figure 6 **Cyclicity of PCAS Formation**

Bloom's taxonomy with six levels of achievement offers the following progress formation in knowledge and cognitive domains: starting from remembering of facts and basic concepts → moving too understanding and explanation of ideas and concepts → applying and usage of concepts in new situations → analyzing and drawing connections among ideas and concepts → evaluating and making decision → creating and producing of new original ideas and concepts (Armstrong, 2010).

This is the updated version of Bloom's taxonomy, where the interchanging the positions of two last aspects have been specified, as before the creation of new concept and planning the evaluation procedure has to be conducted. Further analyses have been conducted basing on revised Bloom's taxonomy concept with six proficiency levels for competence mapping (see Figure 7).

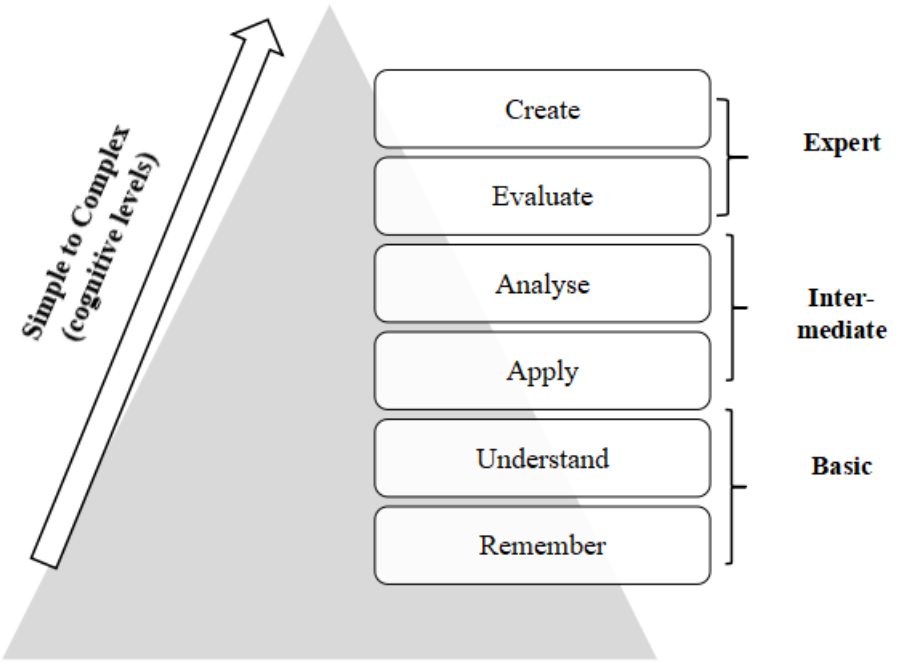

Figure 7 **Bloom's Taxonomy for Competence Formation**

Competence formation process has been specified in accordance to Bloom's taxonomy, while adding the stages of mastery achievement for non-teacher trained academic staff, the matching of proficiency levels and mastery achievement stages has been developed (see Figure 8).

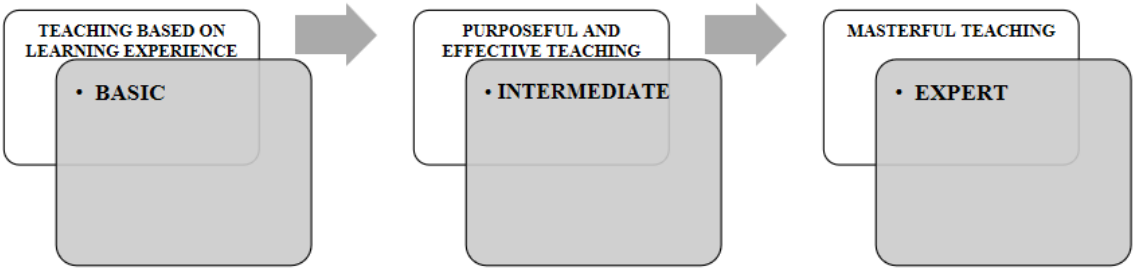

Figure 8 **Proficiency Levels and Mastery Achievement**

Summing up, the specified criteria the indicators for the assessment of TDPC are offered (see Table 6). The most important is to emphasize that by providing the alignment synergies learning and assessment, research-innovative and digital criteria are interconnected, while the proportion of the indicators of each specified criteria is different, as in the context of current research the focus is on the academic staff without pedagogical background, so the core aspect is learning and assessment, while two others complete the present understanding of TDPC by responding to tectonic paradigm shifts that have taken place in the field of education.

Table 6

A Conceptual Description of Criteria and Indicators of TDPC

Criteria of PCAS	Indicators
1. Learning and Assessment	1.1. Individual differences of students, personalization
	1.2. Goals and learning outcomes
	1.3. Study course content
	1.4. Teaching methods, models and strategies
	1.5. Effective study environment
	1.6. Assessment and feedback
	1.7. Reflection
2. Research -innovative	2.1. Professional engagements
	2.2. Organizational communication
	2.3. Professional collaboration
	2.4. Reflective practice
	2.5. Continuous self/professional development
3. Digital	3.1. Selection of digital resources
	3.2. Creation and modification of digital resources
	3.3. Management, protection and sharing of digital resources
	3.4. Empowering learners for effective use of digital resources
	3.5. Facilitating learner's digital competence

Realizing the needs of academic staff of higher education institutions, the offered theoretical framework of TDPC is realized in purposeful action, cyclical and dynamic. It is

based on the self-assessment of academic staff from two perspectives: importance and practical use. Additionally, drawing parallels with the students' assessment of the study process, evaluating the practical use of indicators by the academic staff.

Within the current research the six steps of Bloom' s revised taxonomy are generated to the three levels approach offered by Universities Denmark (see Table 7). By conducting the cross-analysis of offered competence formation to the three-level approach, then Level 1 corresponds to Basic Mastery Level; Level 2 corresponds to Intermediate Mastery Level and Level 3 corresponds to Expert Mastery Level.

Table 7

Three Levels Approach for Mastery Achievement of PCAS

(adopted from (Universities Denmark, 2021))

Progression Level	Description
Level 1	*An entry level*, where academic staff within the scope of own teaching and under guidance, can plan, implement and evaluate teaching/learning, the focus is on the interaction with students.
Level 2	*The starting point*, where academic staff within the scope of his or her own discipline, is capable of analyzing, organizing, implementing, evaluating and developing study courses and their supervision, the attention to both interaction with students and colleagues is increased.
Level 3	*A mastery stage*, offering competence development opportunity within teaching/learning supervision and education, for ensuring the dynamic development for academic staff with updating and maintenance of pedagogical competence, with gradual development of a scope and repertoire of teaching/ learning, supervision and examination practices, increasing collegial and leadership responsibility for the development of teaching and learning.

5. Updated Content of Transformative Digital Pedagogical Competence

Within the project the updated criteria and indicators have been specified: for teaching/learning and assessment (see Figure 9), for research-innovative (see Figure 10) and for digital (see Figure 11).

OFFERED CRITERIA for Transfromative Digital Pedagogical Competence

Co-funded by the Erasmus+ Programme of the European Union

Criteria	Indicators
1. Learning and Assessment	1.1. Individual differences of students, personalization
	1.2. Goals and learning outcomes
	1.3. Study course content
	1.4. Teaching methods, models and strategies
	1.5. Assessment and feedback
	1.6. Reflection
2. Research -innovative	2.1. Professional engagements
	2.2. Organizational communication
	2.3. Professional collaboration
	2.4. Reflective practice
	2.5. Continuous self/professional development
3. Digital	3.1. Selection of digital resources
	3.2. Creation and modification of digital resources
	3.3. Management, protection and sharing of digital resources
	3.4. Empowering learners for effective use of digital resources
	3.5. Facilitating learner's digital competence

1.1. Individual differences of students, personalization (student-centered approach)
1.2. Appropriate goals and learning outcomes [understanding, setting, explaining, reaching, assessing)
1.3. Appropriate study course content, materials (interdisciplinarity)
1.4. Effective teaching methods, models, strategies, learning dynamics
1.5. Effective study environment (including online/in-person)
1.6. Appropriate assessment (types, frequency) and feedback
1.7. Reflection (self-assessment, students' assessment, peer observation)
1.8. Effective communication/collaboration (team/individual/pair work)
1.9. Facilitating students' learning (to facilitate this one, not digital competence)
1.10. Continuous teaching/learning development
1.11. Implementation of innovative teaching/learning
1.12. Support in teaching/learning

Figure 9 **Criteria and Indices for Teaching/Learning and Assessment**

OFFERED CRITERIA for Transfromative Digital Pedagogical Competence

Co-funded by the Erasmus+ Programme of the European Union

Criteria	Indicators
1. Learning and Assessment	1.1. Individual differences of students, personalization
	1.2. Goals and learning outcomes
	1.3. Study course content
	1.4. Teaching methods, models and strategies
	1.5. Assessment and feedback
	1.6. Reflection
2. Research -innovative	2.1. Professional engagements
	2.2. Organizational communication
	2.3. Professional collaboration
	2.4. Reflective practice
	2.5. Continuous self/professional development
3. Digital	3.1. Selection of digital resources
	3.2. Creation and modification of digital resources
	3.3. 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/creativity/ reflection/ commercialization)

Figure 10 **Criteria and Indices for Research-Innovative**

OFFERED CRITERIA for Transfromative Digital Pedagogical Competence

Co-funded by the Erasmus+ Programme of the European Union

Criteria	Indicators
1. Learning and Assessment	1.1. Individual differences of students, personalization
	1.2. Goals and learning outcomes
	1.3. Study course content
	1.4. Teaching methods, models and strategies
	1.5. Assessment and feedback
	1.6. Reflection
2. Research -innovative	2.1. Professional engagements
	2.2. Organizational communication
	2.3. Professional collaboration
	2.4. Reflective practice
	2.5. Continuous self/professional development
3. Digital	3.1. Selection of digital resources
	3.2. Creation and modification of digital resources
	3.3. 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

Figure 11 **Criteria and Indices for Digital**

Thus, the updated theoretical framework of TDPC is offered (see Figure 12).

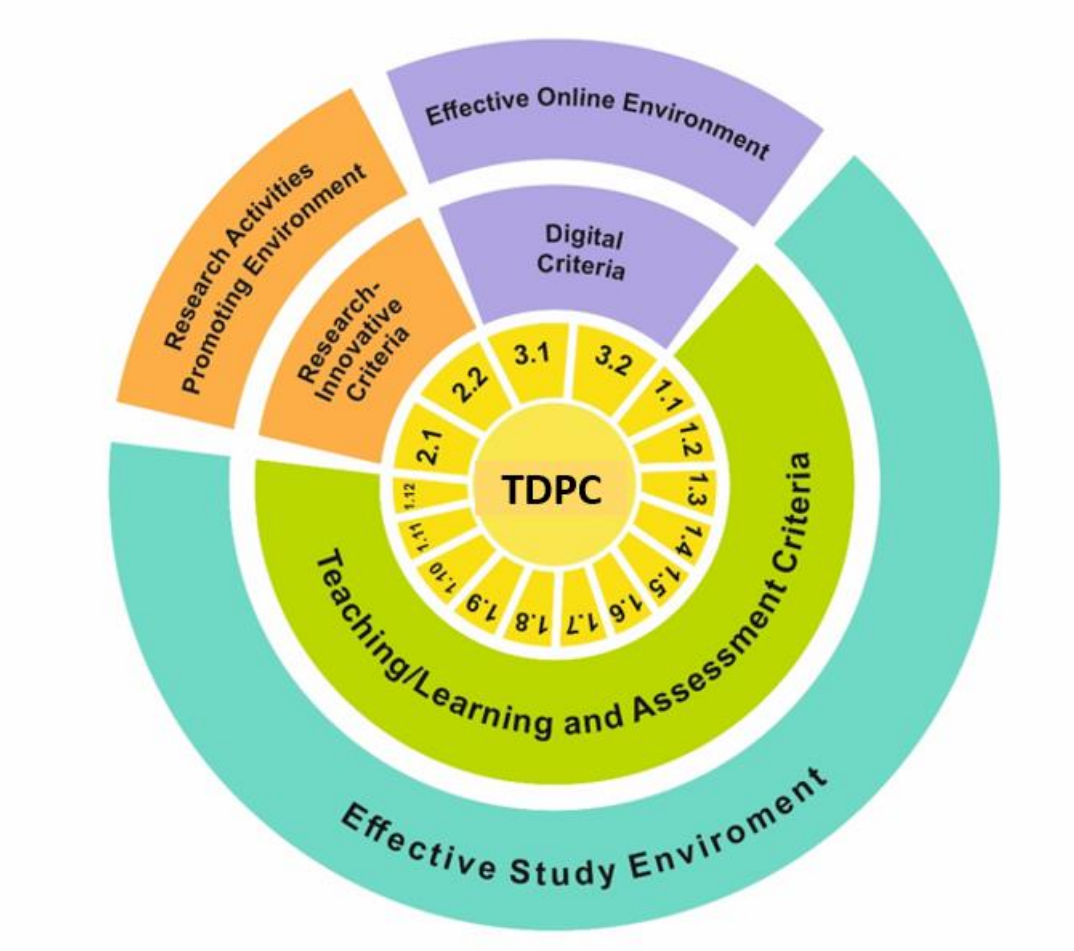

Figure 12 **Theoretical Framework for TDPC**

6. Descriptors Formation

The necessity of criteria, indicators, and descriptors for TDPC lies in the necessity to provide clear and objective guidelines for assessment of performance and provide the feedback and reflection. Criteria outline the specific expectations or standards against which an assessment is made. Indicators are measurable elements that demonstrate the presence or absence of the specified criteria, providing tangible evidence for assessment. While, descriptors further refine the assessment by providing specific descriptions for the corresponding levels. These elements ensure consistency, fairness, and transparency in assessment, enabling academic staff and students to have a shared understanding of what constituted successful performance and allowing for meaningful feedback and targeted improvement.

Within the current project the descriptors were formed in the following way:

RIGA TECHNICAL UNIVERSITY (LV)

1.1. Individual differences of students, personalization (student-centred approach)

1.2. Appropriate goals and learning outcomes [understanding, setting, explaining, reaching, assessing)

1.3. Appropriate study course content, materials (interdisciplinarity)

1.4. Effective teaching methods, models, strategies, learning dynamics

1.6. Appropriate assessment (types, frequency) and feedback

1.7. Reflection (self-assessment, students' assessment, peer observation)

TECHNOLOGIKO PANEPISTIMIO KYPROU (E10208024 - CY):

1.8. Effective communication/collaboration (team/individual/pair work)

1.9. Facilitating students' learning (to facilitate this one, not digital competence)

1.11. Implementation of innovative teaching/learning

2.1. Continuous self/professional development in research/innovations

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

TECHNOLOGICAL UNIVERSITY DUBLIN (E10184018 - IE)

1.5. Effective study environment (including online/in-person)

1.9. Facilitating students' learning (to facilitate this one, not digital competence)

1.12. Support in teaching/learning

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

3.2. Facilitating effective use of digital resources

6.1. Learning/Teaching and Assessment Criteria

Based on the conducted analyses twelve indices are specified for teaching/learning and assessment criteria, while the descriptors are offered, based on three-level approach. The descriptors for each indicator are presented in Table 8 – 19.

Table 8

Indicator 1.1.

Learning and Teaching Competence

Co-funded by the Erasmus+ Programme of the European Union

Level of Progression	Descriptor
Indicator 1.1. Individual differences of students, personalization	
Level 1 (Basic)	Individual differences of students are **considered** (speed, special needs, cultural differences); clear **understanding** of different pedagogical strategies that can support personalization, by **applying** activities at different levels and speeds;
Level 2 (Intermediate)	Individual differences of learners are **considered** (speed, special needs, cultural differences) and the study process is accordingly adopted by **applying** corresponding learning activities (brainstorming, concepts mapping, pair-work; group-work, quizzes, games, etc.) that allow learners to proceed at different speeds, select different levels of difficulty and/or repeat activities previously not solved adequately; flexibly adapt strategies to changing circumstances or needs; the **analyses** are organized afterwards for **evaluation** of teaching/learning process.
Level 3 (Expert)	Individual differences of learners are **considered** (speed, special needs, cultural differences) and the effective interaction and positive study environment are provided by **applying** a huge variaty of pedagogical strategies; in case of necessity the individual learning plans are designed, based on detailed **analyses and evaluation** of teaching/learning process, which allow all students to follow their individual learning needs and preferences; to reflect on, discuss, re-design and innovate pedagogic strategies for personalizing education.

Table 9

Indicator 1.2.

Level of Progression	Descriptor
Indicator 1.2. Appropriate goals and learning outcomes (understanding, setting, explaining, reaching, assessing)	
Level 1 (Basic)	Goals and learning outcomes are clearly **considered**, defined, directed and guided; all parties involved clearly **understand** them as they are accordingly explained
Level 2 (Intermediate)	Goals and learning outcomes are **justified and grounded** to enhance pedagogic strategies, basing on **analyses,** trying **to apply** effectively
Level 3 (Expert)	Goals and learning outcomes are **strategically evaluated**, fitted, linked together, regularly **innovated and renewed** according to the higher education trends; to experiment with and **develop/create** new goals and learning outcomes.

Table 10

Indicator 1.3.

Level of Progression	Descriptor
Indicator 1.3. Appropriate study course content, materials (interdisciplinarity)	
Level 1 (Basic)	Study course content **corresponds** to the defined goals and learners' needs (different level content) and is accordance to the specified topics/theme of the individual discourse, **considering** interdisciplinarity.
Level 2 (Intermediate)	Study course content is **regularly analysed** to promote the development of research-innovative competence of learners and secure research supportive environment, interdisciplinarity aspect **is followed.**
Level 3 (Expert)	Study course content is **systematically innovated and renewed**; to **experiment/evaluate** with and **develop/create** new formats for creation of study course content, new material is developed, **following** interdisciplinarity principle.

Table 11

Indicator 1.4.

Level of Progression	Descriptor
Indicator 1.4. Effective teaching methods, models, strategies, learning dynamics	
Level 1 (Basic)	The **use/apply** of corresponding methods, models and strategies according to the defined learning goals and outcomes; **to use** available classroom technologies.
Level 2 (Intermediate)	The **use/apply of big variety** of methods, models and strategies for providing effective study environment; **to use** different approaches to increase methodological variation, by conducting **regular analyses**.
Level 3 (Expert)	The **purposeful use of methods**, models and strategies; teaching methods, models and strategies are systematically **innovated, renewed and accordingly updated**; to provide a full course of learning modules; ***to experiment/evaluate and develop/create*** new formats and pedagogical methods for instruction; **to continuously evaluate** the effectiveness of different teaching strategies and **revise** them accordingly.

Table 12

Indicator 1.5.

Level of Progression	Descriptor
Indicator 1.5. Effective study environment (including online/in-person)	
Level 1 (Basic)	The features of online/offline study environment **are considered and used/applied** accordingly.
Level 2 (Intermediate)	*The* **use/apply** of big range of options offered by online/offline study environment for effective study process, **analyzing** features.
Level 3 (Expert)	The purposeful **use/apply** of big range of options offered by online/offline study environment, ***to experiment and develop/create*** new formats; to continuously **evaluate** *t*he effectiveness and revise accordingly.

Table 13

Indicator 1.6.

Level of Progression	Descriptor
Indicator 1.6. Appropriate assessment (types, frequency) and feedback	
Level 1 (Basic)	The **use/apply** of clear and appropriate assessment and regular feedback (one in semester; once in a study year).
Level 2 (Intermediate)	The **use/apply of big variety** of assessment and regular feedback (one in semester; once in a study year); the *use* of formative and summative assessment; ***to adapt*** assessment tools to support the specific assessment goals; **to design** assessment tools which are valid and reliable.
Level 3 (Expert)	***The use/apply of innovative*** assessment regularly and critically reflected feedback; **to use a variety** of assessment formats, aligned with content and technology standards, and to be aware of their benefits and drawbacks; ***to develop/create new formats*** for assessment, which reflect innovative pedagogic approaches and allow for the assessment of corresponding competence.

Table 14

Indicator 1.7.

Level of Progression	Descriptor
Indicator 1.7. Reflection (self-assessment, students' assessment, peer observation)	
Level 1 (Basic)	The awareness and ***use/apply of traditional*** reflection; to compline an overview on learners' progress for the further reflection provision.
Level 2 (Intermediate)	The awareness and ***use/apply of regular*** reflection and its integration to the study process; to remain update on progress and make informed choices on future learning priorities, optional subjects or future studies.
Level 3 (Expert)	The ***use/apply of critically reflective and innovative*** reflection with further actions planning for the effective study process; to assist learners in identifying areas for improvement and jointly ***develop/create*** learning plans to address these areas, based on the evidence available; **to reflect on, discuss, re-design and innovate** teaching strategies in response to the found evidence, as concerns learners' preferences and needs as well as the effectiveness of different teaching interventions and learning formats.

Table 15

Indicator 1.8.

Level of Progression	Descriptor
Indicator 1.8. Effective communication/collaboration (team/individual/pair work)	
Level 1 (Basic)	**To consider** different ways of effective communication and collaboration (team/individual/pair work), **to understand** the value of communicating and working collaboratively on learning and teaching practice.
Level 2 (Intermediate)	**To consider** various ways of effective communication and collaboration (team/individual/pair work), **to understand** the value of it, to implement detailed **analyses, to apply** different methods of collaboration on learning and teaching practices (e.g. face-to-face meetings, online communities of practices, groups on social media, sharing and exchanging documents and other material, etc.).
Level 3 (Expert)	**To consider** the variety of ways of effective communication and collaboration (team/individual/pair work), to implement detailed **analyses**, **to apply** different methods of collaboration on learning and teaching practices, additionally to **create** opportunities for effective communication/ collaboration on issues of learning and teaching and **analyse** and **evaluate** the results of these opportunities.

Table 16

Indicator 1.9.

Level of Progression	Descriptor
Indicator 1.9. Facilitating students' learning	
Level 1 (Basic)	To **encourage** learners to use digital technologies for information retrieval (on assignments).
Level 2 (Intermediate)	To **implement** learning activities in which learners use ICT for information retrieval; to teach learners how to find information, how to access its reliability, hot to compare and combine information from different sources; to use a range of different pedagogic strategies to enable learners **to critically compare** and meaningfully combine information from different sources; to teach learners how to quote sources appropriately.
Level 3 (Expert)	**To reflect critically** on how suitable pedagogic strategies are in fostering learners' information and media literacy and adapt the strategies accordingly; to reflect on, discuss, **re-design and innovate** pedagogic strategies for fostering learners' information and media literacy.

Table 17

Indicator 1.10.

Level of Progression	Descriptor
Indicator 1.10. Continuous teaching/learning development	
Level 1 (Basic)	To **consider** opportunities for continuous teaching and learning development, to **plan** continuous teaching and learning development by primarily getting information and familiarising themselves with the basic principles of the teaching and learning practices and how to develop them.
Level 2 (Intermediate)	To and **plan** opportunities for continuous teaching and learning development, to **analyse** these opportunities and **apply** different activities for continuous teaching/ learning development (e.g. attending courses/ Conferences/ lectures/ seminars/ webinars, taking part in fora to develop their understanding of current trends in teaching and learning, etc.).
Level 3 (Expert)	To **consider** and **plan** opportunities for continuous teaching and learning development, to **analyse** these opportunities and **apply** different activities for continuous teaching/ learning development (e.g. attending courses/ Conferences/ lectures/ seminars/ webinars, taking part in fora to develop their understanding of current trends in teaching and learning, etc.), **to create** opportunities for continuous teaching/ learning development (e.g. create groups/ fora, establish networks, etc.) and **to evaluate** the results of these opportunities (e.g. through self-reflection, evaluation of their students' results, etc.)

Table 18

Indicator 1.11.

Level of Progression	Descriptor
Indicator 1.11. Implementation of innovative teaching/learning	
Level 1 (Basic)	Innovative teaching/ learning practices are **considered** and **understood** by academic staff at this level (e.g. latest teaching methods, the use of emerging technologies in teaching and learning, etc..
Level 2 (Intermediate)	Innovative teaching/ learning practices are **considered** and **understood** by academic staff (e.g. latest teaching methods, the use of emerging technologies in teaching and learning, etc.. At this level academic staff are also able to **analyse** and **apply** innovative teaching and learning practices.
Level 3 (Expert)	Innovative teaching/ learning practices are **considered** and **understood** by academic staff (e.g. latest teaching methods, the use of emerging technologies in teaching and learning, etc.). Academic staff are also able to **analyse** and **apply** innovative teaching and learning practices. Finally, at this level they are also able to **evaluate** the results of these innovative teaching and learning practices (e.g. through self-reflection, evaluation of their students' results, etc.).

Table 19

Indicator 1.12.

Level of Progression	Descriptor
Indicator 1.12. Support in teaching/learning	
Level 1 (Basic)	To **consider** the support aspect in teaching and learning, by taking into account the individualization of the study process try **to apply** different support activities accordingly
Level 2 (Intermediate)	To **consider** the support aspect in different dimensions of teaching and learning, by **analysing** the individualization of the study process different support activities are **applied** accordingly
Level 3 (Expert)	To **consider** the support aspect in various dimensions of teaching and learning, by **analysing and evaluating** the individualization of the study process different support activities are **created** and **applied** accordingly.

6.2. Research-innovative Criteria

Based on the conducted analyses two indices are specified for research-innovative criteria, while the descriptors are offered, based on three-level approach. The descriptors for each indicator are presented in Table 20-21.

Table 20

Indicator 2.1.

Level of Progression	Descriptor
Indicator 2.1. Continuous self/professional development in research/innovations	
Level 1 (Basic)	to **understand** opportunities for CPD, to plan for CPD by primarily getting information and familiarising themselves with the basic principles of research /innovation in pedagogy.
Level 2 (Intermediate)	**to pursue** opportunities for CPD. At this level they select, **analyse** and organise their CPD activities by attending Conferences/ lectures/ seminars/ webinars and taking part in fora to develop their understanding of current trends in research and practice in pedagogy.
Level 3 (Expert)	**to take full advantage** of opportunities for CPD, **to evaluate and reflect** on CPD and **use** gained experience **to maximise** opportunities for networking and collaboration in research and practice.

Table 21

Indicator 2.2.

Level of Progression	Descriptor
Indicator 2.2. Effective professional practice (collaboration/ communication/ networking/ exchange of ideas/ good practices/ engagement/creativity/ reflection/ commercialization)	
Level 1 (Basic)	to **understand** different professional practices related to research and innovation, **to get informed** about opportunities for conducting and disseminating research and practice in various teaching contexts through collaboration and mobility, to **consider** different reflection tools and methods.
Level 2 (Intermediate)	**to plan** opportunities for professional engagements and sharing of good practices, by identifying gaps in research and practice, making plans for addressing these gaps through research and establishing collaborations towards that direction, to **create** opportunities for collecting and **analysing** data for reflection.
Level 3 (Expert)	**to recognize and exploit** opportunities for professional engagement by **evaluating** research conducted in professional engagements and applying findings and results in other contexts through the creation of opportunities for dissemination and mobility, through these actions to **encourage and support** networking and exchange of ideas, to **evaluate** reflection strategies employed in various contexts as well as **advise** less experienced professionals on how to establish reflection processes and use the findings **to improve** both theory and practice.

6.3. Digital Criteria

Based on the conducted analyses two indices are specified for digital criteria, while the descriptors are offered, based on three-level approach. The descriptors for each indicator are presented in Table 22 – 23.

Table 22

Indicator 3.1.

Level of Progression	Descriptor
Indicator 3.1. Appropriate and effective management of digital resources (sharing, creation, protection)	
Level 1 (Basic)	Managing digital resources **using basic strategies**; to store and organize digital resources for own future use; to share educational content; to be aware that some resources distributed on the internet are copyrighted.
Level 2 (Intermediate)	To share educational content on virtual learning environments or by uploading, linking or embedding it; ***to effectively*** protect personal and sensitive content and restrict access; to understand the copyright rules that apply to the digital resources that are used for special purposes.
Level 3 (Expert)	***To compile comprehensive digital content repositories*** and make them available to learners or other educators; ***to apply licenses*** to the resources published online; professionally publishing self-created content, annotating the resources digitally shared and enabled others to comment, rate, modify, re-arrange or add.

Table 23

Indicator 3.2.

Level of Progression	Descriptor
Indicator 3.2. Facilitating effective use of digital resources	
Level 1 (Basic)	**To use/apply** ICT to visualize and explain new concepts in a motivating and engaging way (by animation or video); to employ digital learning activities which are motivating and engaging (games, quizzes).
Level 2 (Intermediate)	To put learners' ***active use*** of ICT at the center of the instructional process; to choose the most appropriate tool for fostering learner active engagement in a given learning context or for a specific learning goals and outcome; to use a range of digital technologies to create a relevant, rich and effective digital learning environment; ***to reflect*** *on* how effective the teaching strategies employed are in increasing learner engagement and active learning.
Level 3 (Expert)	***To select, design, employ and orchestrate*** *the use* of ICT within the learning process according to their potential for fostering learners' active, creative and critical engagement with the subject matter; to reflect on how suitable the different digital technologies are in increasing learners' active learning and adapt the strategies and choices accordingly; ***to reflect on*****, discuss, re-design and innovate** pedagogic strategies for actively engaging learners.

CONCLUSIONS

Within the investigation it has been concluded that academic staff concept is similar as in international, European and Latvian dimension and are formed of the following main responsibilities: to conduct teaching/learning and research work and to be involved in management and leadership activities, implementing innovative transformation. Moreover, the international cooperation and engagement in European science networks are among the key priorities for further development and perspective. One point requires special attention, that is systematic monitoring and progress check have to be conducted, the necessary enhancements have to be implemented in order to provide the background and search for new growth opportunities, professional mastering and scientific excellence in the perspective of academic staff. Proficient and committed academic staff is a necessity of higher education institution to provide high-quality education and scientific excellence. Although, the current research is specified for the academic staff without pedagogical background, non-teacher trained educators.

Additionally, the theoretical framework for the updated concept of transformative digital pedagogical competence of academic staff has been offered, based on the comparative analyses of the existing frameworks of pedagogical competence in six specified countries: Latvia, Lithuania, Estonia, Denmark, the United Kingdom and Ireland, drawing parallels with Canadian perspective as well.

The updated profile of transformative digital pedagogical competence is formed of three criteria: teaching/learning and assessment, research-innovative, and digital, where the specific attention is paid for the effective environment for the development and improvement of the indicated criteria. Additionally, the indicators are offered for each criterion, where the assessment is offered using the descriptors, based on three-level approach.

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Appendix 1

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ERASMUS+ project **"Transformative Digital Pedagogies for Higher Education"**

contract Nr. 2022-1-LV01-KA220-HED-000085277

WP2: Theoretical and empirical framework of transformative digital pedagogical competences

Coordinator: RTU, Latvia

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

Cyprus University of Technology Report on Activity WP2.2

By

Dr Elis Kakoulli Constantinou and Dr Stavroula Hadjiconstantinou

Limassol

April 2023

Contents

1. Activity WP2.2 Development of the TDP4HE project framework

The purpose of this activity was to produce a theoretical assessment framework that will be used by the academic community in order to self-assess their competence in transformative digital pedagogies. This framework would be improved and refined after the insights yielded from focus groups with academic teaching staff organised in each of the 5 partner Universities.

The framework was based on three criteria for the assessment of Transformative Digital Pedagogical Competence (TDPC):

I. Criteria: teaching/learning and assessment

II. Criteria: research-innovative

III. Criteria: digital

The number of indicators was re-designed in accordance to the conducted research. Therefore, the following indicators were offered to each partner, to prepare the descriptors of three mastery levels:

TECHNOLOGIKO PANEPISTIMIO KYPROU (E10208024 - CY):

1.8. Effective communication/collaboration (team/individual/pair work) 1.9. Facilitating students' learning (to facilitate this one, not digital competence)

1.10 Continuous teaching/learning development1.11. Implementation of innovative teaching/learning

2.1. Continuous self/professional development in research/innovations2.2. Effective professional practice (collaboration/ communication/ networking/ exchange of ideas/ good practices/ engagement/creativity/ reflection/ commercialization)

TECHNOLOGICAL UNIVERSITY DUBLIN (E10184018 - IE)

1.5. Effective study environment (including online/in-person) 1.9. Facilitating students' learning (to facilitate this one, not digital competence)1.12. Support in teaching/learning

3.1. Appropriate and effective management of digital resources (selection, use, modification)3.2. Facilitating effective use of digital resources

RIGA TECHNICAL UNIVERSITY (LV)

1.1. Individual differences of students, personalization (student-centred approach)1.2. Appropriate goals and learning outcomes [understanding, setting, explaining, reaching, assessing)1.3. Appropriate study course content, materials (interdisciplinarity) 1.4. Effective teaching methods, models, strategies, learning dynamics1.6. Appropriate assessment (types, frequency) and feedback1.7. Reflection (self-assessment, students' assessment, peer observation)

Detailed descriptors were provided for the specified indicators. These descriptors were formulated in accordance to the wording of Bloom's updated taxonomy, following the principle from simple to complex:

REMEMBER (consider, keep in mind);

UNDERSTAND (realize, provide comprehension);

APPLY (use, adapt);

ANALYZE (sort out, specify);

EVALUATE (assess, judge, value, estimate);

CREATE (develop, update, innovate, re-design, invent).

3.1 Indicators of transformative digital pedagogical competence by the Cyprus University of Technology

Following are the indicators which the CUT research team worked on with the descriptors for each of the three levels (Basic, Intermediate, Expert):

Indicator 1.8 Effective communication/ collaboration (team/ individual/ pair work)

Level of Progression	Descriptor
Indicator 1.8 Effective communication/collaboration (team/individual/pair work)	
Level 1 (Basic)	The ways in which effective communication and collaboration between members of the academic staff can be achieved are **considered** (team/individual/pair work). At this level academic staff **understand** the value of communicating and working collaboratively on learning and teaching practice.
Level 2 (Intermediate)	The ways in which effective communication and collaboration between members of the academic staff can be achieved are **considered** (team/individual/pair work) and their value is **understood.** However, at this level these ways are **analysed** in detail. At this level academic staff are also able **to apply** different methods of collaboration on learning and teaching practices (e.g. face-to-face meetings, online communities of practices, groups on social media, sharing and exchanging documents and other material, etc.)
Level 3 (Expert)	The ways in which effective communication and collaboration between members of the academic staff can be achieved are **considered** (team/individual/pair work) and **analysed** in detail. The members of the academic staff are able **to apply** different methods of collaboration on learning and teaching practices. In addition, at this level they are also able to **create o**pportunities for effective communication/ collaboration on issues of learning and teaching and **analyse** and **evaluate** the results of these opportunities.

Indicator 1.10 Continuous teaching/learning development

Level of Progression	Descriptor
Indicator 1.10 Continuous teaching/learning development	
Level 1 (Basic)	Academic staff **consider** opportunities for continuous teaching and learning development. At this level they **plan** for continuous teaching and learning development by primarily getting information and familiarising themselves with the basic principles of the teaching and learning practices and how to develop them.
Level 2 (Intermediate)	Academic staff **consider** and **plan** opportunities for continuous teaching and learning development. At this level they **analyse** these opportunities and **apply** different activities for continuous teaching/ learning development (e.g. attending courses/ Conferences/ lectures/ seminars/ webinars, taking part in fora to develop their understanding of current trends in teaching and learning, etc.).
Level 3 (Expert)	Academic staff **consider** and **plan** opportunities for continuous teaching and learning development. They are also able to **analyse** these opportunities and **apply** different activities for continuous teaching/ learning development (e.g. attending courses/ Conferences/ lectures/ seminars/ webinars, taking part in fora to develop their understanding of current trends in teaching and learning, etc.). At this level they are also able **to create** opportunities for continuous teaching/ learning development (e.g. create groups/ fora, establish networks, etc.) and **to evaluate** the results of these opportunities (e.g. through self-reflection, evaluation of their students' results, etc.)

Indicator 1.11 Implementation of innovative teaching/learning

Level of Progression	Descriptor
Indicator 1.11 Implementation of innovative teaching/learning	
Level 1 (Basic)	Innovative teaching/ learning practices are **considered** and **understood** by academic staff at this level (e.g. latest teaching methods, the use of emerging technologies in teaching and learning, etc..
Level 2 (Intermediate)	Innovative teaching/ learning practices are **considered** and **understood** by academic staff (e.g. latest teaching methods, the use of emerging technologies in teaching and learning, etc.. At this level academic staff are also able to **analyse** and **apply** innovative teaching and learning practices.
Level 3 (Expert)	Innovative teaching/ learning practices are **considered** and **understood** by academic staff (e.g. latest teaching methods, the use of emerging technologies in teaching and learning, etc.). Academic staff are also able to **analyse** and **apply** innovative teaching and learning practices. Finally, at this level they are also able to **evaluate** the results of these innovative teaching and learning practices (e.g. through self-reflection, evaluation of their students' results, etc.).

Indicator 2.1. Continuous self/professional development in research/innovations

Level of Progression	Descriptor
Indicator 2.1. Continuous self/professional development in research/innovations	
Level 1 (Basic)	Academic staff **understand** opportunities for CPD. At this level they plan for CPD by primarily getting information and familiarising themselves with the basic principles of research /innovation in pedagogy.
Level 2 (Intermediate)	Academic staff pursue opportunities for CPD. At this level they select, **analyse** and organise their CPD activities by attending Conferences/ lectures/ seminars/ webinars and taking part in fora to develop their understanding of current trends in research and practice in pedagogy.
Level 3 (Expert)	Academic staff can take full advantage of opportunities for CPD. They **evaluate** and reflect on CPD and use their experience to maximise opportunities for networking and collaboration in research and practice.

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

Level of Progression	Descriptor
Indicator 2.2 Effective professional practice (collaboration/ communication/ networking/ exchange of ideas/ good practices/ engagement/creativity/ reflection/ comercialization)	
Level 1 (Basic)	Academic staff **understand** different professional practices related to research and innovation. At this level they get informed about opportunities for conducting and disseminating research and practice in various teaching contexts through collaboration and mobility. They also **consider** different reflection tools and methods.
Level 2 (Intermediate)	Academic staff plan opportunities for professional engagements and sharing of good practices. At this level they make provisions for taking part in professional engagements by identifying gaps in research and practice, making plans for addressing these gaps through research and establishing collaborations towards that direction. They also **create** opportunities for collecting and **analyzing** data for reflection.
Level 3 (Expert)	Academic staff can recognize and exploit opportunities for professional engagement by **evaluating** research conducted in professional engagements and applying findings and results in other contexts through the creation of opportunities for dissemination and mobility. Through these actions they encourage and support networking and exchange of ideas. As experts they can also **evaluate** reflection strategies employed in various contexts as well as advise less experienced professionals on how to establish reflection processes and use the findings to improve both theory and practice.