A COMPETENCE APPROACH TO THE ASSESSMENT OF THE QUALITY OF TEACHING IN EU UNIVERSITIES IN THE DIGITAL AGE

[a]NATALIIA BAKHMAT, [b]YULIYA CHEMODUROVA,
[c]TETYANA CHUMAK, [d]NATALIYA ADAMCHUK

[a]*Kamianets-Podilskyi Ivan Ohiienko National University, 61, Ogienka Str., 32300, Kamianets-Podilskyi, Ukraine*
[b]*Zaporizhzhia Regional Inservice Teacher Training Institute, 57-A Independent Ukraine Str., 69035, Zaporizhzhia, Ukraine*
[c-d]*National University of Life and Environmental Sciences of Ukraine, 15, Heroiv Oborony Str., 03041, Kyiv, Ukraine*
email: [a]*bahger.teacher@gmail.com*, [b]*ulinik@ukr.net*,
[c]*tchumak27@ukr.net*, [d]*naridna@gmail.com*

Abstract: Pedagogical activity is multifaceted and complex, which requires the teacher to have a high degree of formation of various types of competencies - pedagogical, subject, cognitive, etc. Modern realities add digital skills to the model of teacher competencies. The use of digital resources and technologies in pedagogical practice is now not only desirable, but a necessary element. However, the rate of development of digital technologies is significantly ahead of the rate of professional development of teachers. In this regard, the development of a model of digital competencies of a modern university teacher seems to be an urgent task and is being carried out by various expert and scientific communities. In this article, including on the basis of an empirical study, some of these competencies are considered – those ones developed and used in the EU countries.

Keywords: Competence approach, Teachers' competence, Digital technology, Digital competence.

1 Introduction

In modern conditions of globalization and competition in the field of education, much attention is paid not only to improving the level of educational services, but also to developing the professionalism of teachers as the main providers of these services. A university teacher is one of the key figures in the development of a student's personality and professional skills during his studies at a university. In addition to direct teaching, teachers convey to the student their own motivational and value attitude to the discipline, their passion for the subject, thereby modeling a certain attitude of students to the material being studied.

Enhancing the professionalism of university teachers is increasingly more associated with the use of a competency-based approach. It is logical to move from the implementation of the competence-based methodology in the training of university graduates to its use in the training and advanced training of teachers. However, this task is no less difficult than the implementation of the competence-based approach in working with students. In fact, these two tasks are closely related. New requirements for the professionalism of graduates lead to the need to develop new requirements for the professionalism of teachers. The competence model of a modern university teacher is the embodiment of these requirements and, at the same time, the basis for objective certification of the university teachers' qualifications, largely independent of the subject area of activity [1]. At the same time, the activity of a university teacher is very multifaceted. It includes research, teaching, design, educational and methodological, organizational, expert evaluation, innovation and some others kinds of activities.

In the EU - the "cradle" of most of the world's innovations in higher education - education and training as part of lifelong learning play an important role in creating a European identity based on common cultural values. Education is designed to help young people to formulate and express their opinions, to be involved in social processes and, in this way, to shape the future of Europe, characterized by advanced democracy, solidarity, and inclusiveness [2]. Digital technologies enrich learning and offer new educational opportunities, the main quality of which should be equal accessibility for all segments of the population.

The new generation of students (Generation Z) lives in a digital environment, which is formed by digital technologies, including educationally significant digital technologies:

telecommunications technologies, Big Data, distributed registry systems, artificial intelligence, robotics components, wireless communication technologies, virtual and augmented reality technologies, cloud technologies, electronic identification and authentication technologies, digital technologies for specialized educational purposes, the Internet of things [7]. Trends in the digital transformation of the sphere of education require from a teacher a high level of ICT competence, for the successful implementation of professional activities, because namely teachers are called upon to prepare the younger generation for life and work in the modern digital society.

Today, digitalization, covering the field of education, is pushing the teacher to master the most relevant technological tools and methods for implementing the educational process. The pedagogical, managerial, technical staff of an educational organization is faced with the task of "smooth" integration of technologies and the use of digitalization opportunities in the educational space. However, the system of competencies of a university teacher in the digital age remains outside the scope of a comprehensive study. The competence composition of teaching activities and indicators of pedagogical excellence in the context of "digital" higher education also need to be developed. The purpose of this study is to identify and compare competency indicators that distinguish the best teachers from the point of view of students. The research methods included the development and testing of a questionnaire for data collection, checking the validity of the tools, conducting data collection on a larger sample, analyzing the data obtained, and comparing the results for classical and research universities.

2 Method

Currently, the study of the content of general and professional competencies for various profiles of pedagogical training in preschool and school education is ongoing. However, the problems of professionalism of a higher education teacher and his role in the development of students' professionalism have been studied to a lesser extent. Unfortunately, the issues of training personnel for higher education, and even more so indicators of teaching excellence in the context of higher education, remain outside the scope of a comprehensive object of study. Some believe that anyone who has a higher education diploma can become a teacher in the university, especially in the digital age, while a specialist can master methodological and other necessary skills on his own [17]. Meanwhile, A.V. Khutorskoy rightly calls competencies not only the totality of knowledge, skills, and abilities, but also the methods of activity necessary for productive actions in relation to certain objects and processes [13]. An even more expanded definition is given by V. Bolotov and V. Serikov, who understand competence as a complex synthesis of cognitive, subject-related practical and personal experience, an integrative value that incorporates concepts, methods of activity, personal experience and worldview [4].

However, researchers note the limitations of looking at competencies as static phenomena in a dynamically changing digital world [20]. From their point of view, competencies should make it possible to solve new problems in unfamiliar situations, while also transforming themselves. The distinctive features of competence, therefore, will be integration, volume, transferability, awareness, dynamism. Modern higher education is becoming the center of new ideas and innovations, provides the formation of a professional human resource, which is necessary for promoting the latest areas of education, science, and business. The driving force of the modern world economy is professional skills in the form of technologies of various modalities. The latest educational trend is to continuously replenish own knowledge throughout the whole professional life, with the active use of digital technologies. The strategies of professional activity, professional competence of a university

teacher in the digital age are formed as an integral structure. It represents an integral structure of such competencies, the totality of which is necessary to create pedagogical conditions for the implementation of the professional activities of a teacher [12, 19]. As it is known, the main areas of work of a higher education teacher include educational, methodological, research, and managerial functions.

With this in mind, the methodological basis of the study was as follows:

- The provisions of the system-activity approach (L.S. Vygotsky, A.N. Leontiev, S.L. Rubinshtein, etc.), according to which knowledge acquires value only when it is included in educational activities;
- The provisions of the personal approach, suggesting the development of the personality through the organization of its activities;
- The provisions of the integrative approach, which determine the systemic and holistic education, the integrative essence of the professional activity of the future teacher.

The theoretical basis of the study was made up of studies in the field of the competence-based approach, studies of the features of the organization of the information and educational environment of an educational organization.

3 Results and Discussion

The competencies of a teacher are directly related to the criteria for effective performance, so it remains an open question how those university teachers who provide the best educational results differ from their colleagues, being considered the best from the point of view of students, or having expert potential. The EAQUALS competency matrix, which sets standards in language education, identifies a cohort of expert teachers who have the following characteristics [3, 10]. First, they act as mentor to less experienced colleagues, guiding them in the selection and development of training materials, learning management, error correction, and professional development. Secondly, such professionals influence not only the activities of their colleagues and students, but also the educational organization; they play the role of a leader: they participate in the decision-making process, constructively evaluate the effectiveness of the educational process, develop new systems and processes, coordinate administrative and educational tasks, performed by others. Thirdly, their skills differ in breadth and depth; for this reason, such teachers use a wide range of approaches and techniques to develop different skills, manage groups of students with different cultural contexts, different ages, with different needs, at different levels, respond to special needs. Moreover, expert-level educators demonstrate critical thinking skills and flexibility by analyzing the effectiveness of assessment tools and feedback methods, critically evaluating tools and resources for professional development, developing alternative approaches, adapting to the context, adequately responding to unforeseen circumstances, improvising according to the needs of students.

Special mention should be given to the student-centered (personally oriented) education they carry out, which is manifested in the creation of a constructive atmosphere, the involvement and motivation of students, the support of discipline, the support of students at the group and individual levels, the development of educational autonomy of students. Much of the above comes with practice: routine actions are automated, so experts can be more flexible, make decisions faster and perform more complex tasks.

However, the digital age has added a new component to the aforementioned teacher competency framework: digital competency. The government of the European Union has for several years expressed concern about the slow introduction of digitalization processes in training and education. In order to study the state of the current level of implementation of e-learning in educational institutions of the EU countries, the

European Commission conducted a survey of citizens' opinions and published it as part of the Eurobarometer. According to it, the most important aspects of education and learning, as EU citizens believe, are related, in particular, to the teacher's ability to attract and motivate students. This area is considered the most in need of improvement (51%). Other areas that require special attention are the learning environment to stimulate creativity and curiosity (41%), as well as practical work experience in a company or organization (37%). The vast majority of EU citizens (95%) believe that the necessary competencies and skills can be obtained outside of formal education, in particular, foreign language skills, as well as practical skills that are in demand in different segments of the economy [6]. EU initiatives to digitize education have focused on formal educational institutions, from kindergartens to universities, but non-formal adult learning remains a key idea, as lifelong learning is one of the areas where, according to the study, the European Union is still not achieved the desired result. Therefore, in 2018, the so-called action plan was published, considered as a priority in the field of digital education.

In the last decade, a unique situation of dialectical contradiction has been created: a generation is growing that knows how to handle various gadgets from an early age, and this generation is taught by those who grew up in a system of classical linear education without constant access to the Internet and without social networks. The Eurobarometer data confirms these positions - only 20-25% of students in European universities are taught by teachers who are confident users of new technological achievements, 43% of Europeans do not have basic digital skills, and 71 million students in European countries have insufficient skills for the digital society. Given the need to take decisive action in the field of education, the European Commission adopted the main provisions of the Current Plan for Digital Education in Brussels on January 17, 2018, calculated up to 2022 [11].

Decisions to introduce innovations in education and training were made dynamically and consistently. In the Declaration, adopted in Rome in March 2017, the European Education Commission emphasized the EU's commitment to providing the population with better education and training. In October 2017, the Council of Europe called on the education and training system to be at the level of the digital age. In November 2017, at the Gottenberg Summit, the European Parliament, the European Council, and the European Commission on Education adopted the European Human Rights Framework, which emphasized the human right to quality and inclusive education and lifelong learning [21].

The communiqué "Strengthening European identity through education and culture", adopted at the Gottenberg Summit, presented a perspective vision for the European educational space, an important part of which was the Digital Education Action Plan. The first European Education Summit was held in Brussels on January 25, 2018 under the title: "Fundamentals of a European Educational Space for Innovative, Inclusive and Value-Based Education" [5].

The summit highlighted the lack of progress in the following areas: the basic skills of young people in Europe, the need to address inequalities in education systems, and greater investment in education. During the summit meeting, the issue of how to use the most modern scientific knowledge and methodological techniques to implement a value-based approach to learning was considered. Education must become part of civil society in order to achieve high-level political consensus to address the problems of inequalities in education and the development of social cohesion.

Key competencies were revised in terms of lifelong learning, listing the knowledge, skills and abilities necessary for lifelong learning, including digital competencies.

The action plan clearly outlines how education and training systems can make better use of innovation and digital technologies and support the development of relevant digital

competencies needed to live and work in an era of rapid digital change.

According to the plan, Europe's digital transformation is expected to accelerate due to the rapid development of new technologies such as artificial intelligence, robotics, cloud computing and blockchain. Like previous major technological advances, digitalization processes have a significant impact on all areas: everyday life, human interaction, education, and work. Foresight generalizations express expectations about the professions of the future - some jobs will disappear, others will need to be replaced, new jobs will be created, and new activities will emerge [9]. All these processes convince that the development of digital skills throughout life is a priority.

While digital transformation offers many opportunities, the biggest risk today is that society is not sufficiently prepared for such changes. Therefore, an extremely important role in such conditions is given to education. Namely education that should be the basis for the growth and integration of the individual, while the key task is to prepare citizens to make the most of the available opportunities and respond to the challenges of a rapidly changing, globalized, and structurally interconnected world.

Pan-European cooperation realized through the exchange of best practices, peer learning and exchange of evidence, is a proven way to support education systems in the states of the European Union. Common frameworks help define effective solutions, while common tools like eTwinning increase efficiency and expand the sphere of digital reach. Innovative practices in education, in particular digital ones, are widespread in the EU. They take various forms and include public, private, and non-governmental actors. However, innovation in education systems is not an end in itself, but a way to improve the quality and inclusiveness of education systems.

Research data from the European Institute of Innovation and Technology have shown that already now, without waiting for changes in legislation, stakeholders are actively using digital opportunities to improve teaching and learning [16, 18]. There is a need to share, discuss, promote, and scale up innovative practices. Concepts, tools, methods, processes, systems thinking and design thinking need to be more accessible to educators who for now tend to be under-informed about innovations in the education system.

Stakeholders in education and training are key players in the innovation process. Public consultations highlighted the need for more focused EU action to support the introduction of innovative approaches and digital technologies in education, as well as the development of digital competencies, including digital media literacy and digital security and well-being [8]. The focus is on the implementation and the need to stimulate, support, and expand the targeted use of digital and innovative educational practices. The plan is expected to be drawn based on a wide range of education and training stakeholders, including the business community, research, NGOs, and non-formal education where appropriate.

At the same time, innovations in the field of education and training largely depend on the competence of teachers in universities. The implementation of these innovations is possible only with an innovative approach that combines teacher training, curricula adjustments, and teaching materials to implement digital learning models. This organization-wide approach to digitalization of teaching and learning is reflected in the SELFIE self-assessment tool [14]. SELFIE is one of the 13 initiatives announced in the Digital Education Action Plan (2021-2027) of the European Commission. SELFIE for Teachers is a self-assessment tool based on the European Digital Competence Framework for Educators (DigCompEdu), which was developed to support teachers in developing digital competencies and in using digital technologies for effective teaching and learning. Users of the tool need to first fill out a questionnaire to identify their strengths and weaknesses in relation to digital competencies. The following step is personalized feedback pointing out areas for further development, and a customized

study plan that can be completed on own schedule. Moreover, the tool connects users of all levels of digital expertise to share knowledge, challenges, and best practices. The tool has been tested by 3299 teachers from 5 European countries. Five of these teachers from Portugal, Italy, Ireland, Lithuania and Estonia were invited to the event, where they were able to share their stories about the use of SELFIE for teachers and put forward suggestions for improving the tool [2]. SELFIE for teachers is currently only applicable to primary and upper secondary education. However, the European Commission is considering extending the use of SELFIE to teachers of higher education. The platform was perceived as user-friendly and useful for sharing experiences between teachers.

The digital competencies of teachers are the basis for the transformation of universities. At the same time, the structure of the competence model of a teacher of higher education can be considered as a tool that allows employers and society as a whole to demonstrate what competencies the university strives to provide for graduates and what relevant requirements the university imposes on its teaching staff.

The digitalization of higher education is accompanied by the incorporation of digital competencies into the structure of academic capital - the skills of teaching and research activities in the digital environment. They acquire an independent value, and also form the methodological basis for a set of professional competencies of a teacher.

Based on the framework model of digital competencies proposed by the Joint Research Center of the European Commission, variants of digital competency grids for various empirical objects are being developed. In particular, the grid for university teachers proposed by German scientists includes eight dimensions: IT literacy, the ability to search and work with digital information, communication and collaboration in a digital format, digital learning, digital identity and career planning, digital scientific activity, digital production of media products, analysis and comprehension [3]. Another version of the grid can be created on the principle of embedding a digital component into the basic competencies of a university teacher: scientific-subject, psychological-pedagogical, communicative, managerial and creative digital competence [1].

The empirical study of various aspects of digital competencies is gaining momentum: promoting digital literacy in the culture of education; measuring the level of formation of digital competencies; readiness of teachers to teach digital skills and barriers to this; differences in the profiles of digital competencies of students and university teachers, as well as in the development trajectory of social network communicative literacy, etc. [11].

Competency models are generated in response to the needs of the environment and social institutions. Rapid sociotechnical transformations make modeled competency grids a special case, not always relevant to current tasks and the current state of social systems, which actualizes the need to develop a more universal approach to studying the results and possible scenarios of academic development. In the empirical study of academic capital, it is important to take into account that its structure is determined by factors of different genesis - institutional, organizational-environmental, personal. In particular, t the institutional level, a frame of academic normativity and competence is being formed, correlated with the mission of the university and the functions of higher education in specific social conditions. The environment of the organization produces incentives for building competencies that affect the system of professional dispositions. The personal factor is the internal motivation of the teacher, his orientation towards professional development.

In our study, we attempted to identify and analyze the competence of the best teachers from the perspective of students studying at universities of two types: a classical university (Charles University in Prague) and a research university (Czech Technical University in Prague). The study was conducted in

several stages: 1) preparatory - development and testing of the questionnaire and checking its validity; 2) research - data collection; 3) analytical - analysis of respondents' answers and summing up the results of the study.

In the first stage, 40 second and third year students of the Czech Technical University (aged 19–20) were asked to answer two open-ended questions in writing. The questions concerned the qualities and activities of those teachers whom they consider the best. Each of the 40 students who took part in the survey suggested two to five qualities and performance indicators. Respondents were selected by the continuous sampling method. Based on the results of cluster analysis and processing of qualitative data, a second survey was compiled, which included the most popular answers from the first stage. In two closed questions, students were asked to choose from the proposed list the three most important, from their point of view, characteristics of the activity and the three personal and professional characteristics of a university teacher. In two open-ended questions, students were asked to briefly describe which teacher is competent for them, and which one is interesting, because these definitions were often found in the answers of the first stage of the study (during the testing of the questionnaire), but required clarification.

The electronic survey was sent to 1st-4th year students of the Czech Technical University and Charles University (aged 18-22). Participation was voluntary, 250 students of the Czech Technical University and 228 representatives of Charles University took part in the survey. Descriptive statistics were used to analyze closed responses; open responses were analyzed thematically.

The qualities of the best teachers identified at the first stage of the study (57 in total, some qualities were repeated) were grouped into clusters, as a result of which the most significant category included qualities that describe the positive emotional attitude of the teacher towards students (patient, understanding, friendly, responsive, etc.), the second most important category describes the professionalism of the teacher, it also included the most common answer "competent" (10 answers). The students who took part in the survey see the best teachers as responsible (5), professionals (5), who love their work (2), and who are interested in their work (3). Thus, at this stage, it turned out that students value exactingness, but at the same time objectivity and impartiality, and they want the teacher to be interesting to them.

Open answers to the question about the activities of the best teachers give a more complete picture of students' preferences, reveal similar trends in the respondents' answers and understand the meanings of the qualities identified at the previous stage. Five categories were identified here: organization of the learning process based on digital technologies (12 answers), attitude towards work (10), attitude towards students (13), personality-centered / student-centered learning (11), diversity and interest due to the widespread use of digital technologies, an emotionally positive reaction to digital transformations and a tendency to find opportunities in them (13). As in the previous part of the study, in the answers there is a need to establish interpersonal relationships at the student-teacher level, which is expressed in support, tolerant attitude, taking into account the opinions of students when communicating using digital technologies. From their point of view, the best teachers are interested in each of their students, see each individual' best side. Also, students most positively note teachers-innovators – 'agents of change', producers of new educational practices.

Professionalism and competence are revealed as a comprehensive and transparent organization of the learning process, clear requirements and a transparent assessment system. This is manifested in the fact that the teacher evaluates only objectively, regardless of his mood, meets deadlines, explains the material intelligibly and controls its perception, gives knowledge that will be useful in life. For students, passion for the profession and a responsible attitude to their duties in a teacher are important: such teachers prepare for the lesson even more carefully than the students themselves, identify themselves,

as persons, with their profession, are constantly looking for new approaches to solving professional problems.

It is possible to highlight the emphasis on student-centered learning, which is manifested in taking into account the needs of students, personalization of approaches simultaneously with an objective attitude towards them. For this reason, the best teachers track the individual progress of each student, choose the best teaching method for each student / group of students, try to adjust the program to the needs and abilities of the students. There is a need for students in a variety of content and methods of presenting information to increase interest in the subject: a teacher "ignites" with love for their subject, provides not only textbook material, but also additional information, knows how to present any material so that it is remembered, and, with the help of information technology makes each lesson interesting and different from the others.

At the second stage, from the options offered, reflecting the opinions of the participants in the first stage, the respondents - representatives of a classical university and a research university - chose the three most important characteristics of activity and the three qualities of the best teachers. Both groups of respondents consider subject knowledge and the ability to teach their subject as the most important characteristic, inextricably linked with digital competence (more than 80% of respondents). Also, important ones are the skills to interest students and motivate them to study (about 60% of respondents), to fairly evaluate the results of work, to create and maintain a comfortable learning atmosphere (about 50% of respondents). There is no significant statistical difference between the opinions of students of classical and research universities.

Speaking about personal and professional characteristics, it should be noted that the distribution of preferences in this case is more even than in the case of activity characteristics. Approximately at the same level students value competent, polite, fair teachers with a broad outlook (these qualities were chosen by 40 to 60% of students). Comparing the opinions of the students of the two groups, it can be noted that the students of the research university attach more importance to the competence of the teacher and his/her communication skills.

Open responses made it possible to understand what students mean by the concept of 'competent teacher'. As expected, a significant proportion of students' open responses were categorized as "subject knowledge" (47% of responses in both cohorts) and "teaching skills" (16% for classical university students, 14% for research university students). It is noteworthy that a significant percentage of open responses from students of a classical university were classified as "student-centered learning" (15% versus 4% of a research university) and relate to the practice of taking into account the needs and opinions of students in teaching practice.

We also managed to reveal what characteristics make teachers look interesting in the eyes of students. In this case, several almost equivalent categories were identified. First, judging by the students' open responses, the presentation of educational material (19% of the responses of classical university students, 20% of research university students) arouses their interest if it is based on the active involvement of digital technologies, provided with real life examples, is diverse, and motivates students to independent work. Diversity and interest were also noted regarding the use of practice tasks, games, virtual and augmented reality and educational presentations (14% and 17%, respectively). Experience, including work outside the university, as well as a broad outlook that allows the teacher not only to ensure the involvement of students, but also to develop their worldview, were highlighted in 21% of the open responses of students of the research university and 13% of the responses of students of the classical university. The percentages in the answers related to the categories "attitude towards students" (16% of the answers of students of a classical university, 9% - in a research university) and "interest in one's subject / business" (14 and 17%, respectively) also differ slightly. As a result, the results for groups of students from two different learning

contexts are similar. The following characteristics are emphasized in the responses of both cohorts of respondents:

▪ Knowledge of the subject and the ability to teach it;
▪ Excellent knowledge of digital technologies and their active use in the learning process
▪ Fair and objective evaluation;
▪ Motivation and involvement of students through a variety of materials and tasks, going beyond the classroom experience, using humor;
▪ Positive relations with students, orientation to their needs;
▪ The ability to maintain a comfortable atmosphere in the classroom.

Many of the identified characteristics are related to each other. A sense of humor and references to experience or other areas of knowledge help diversify classes and engage the audience. Developed teaching skills provide a fascinating presentation of the material, and an understanding of the needs and characteristics of students determines the relationship with them and the approach to teaching. In general, the results of this study are in line with what studies show in other contexts. Obviously, the best teachers not only know and teach their subject well, but also motivate students to comprehend it, including "infecting" them with enthusiasm for their discipline. A teacher with high professional motivation represents the most significant 'factor' in stimulating the motivation of students.

Consciously or unconsciously, the best teachers follow the theory of motivation: they create a working, but at the same time friendly atmosphere in which students can reveal their potential, they themselves are a model of a caring professional. Interest and motivation arising from it are important for students of both research and classical universities.

Developing M. McLuhan's idea that information and communication technologies are "a kind of extension of the human nervous system", teachers are faced with the task of comprehending the diverse aspects of this process and creating practices aimed at developing the personality of a human in the information society [15]. One of the main characteristics of the formation of a knowledge society is its openness, interpreted in pedagogical, political, and technological aspects. The strategic goal of the current stage is to conduct empirical research aimed at developing a wide range of forms of e-learning and creating a theoretical base for the pedagogy of the information society.

Total digitalization creates a need for new models of organizing the educational process, providing students with fundamentally new development trajectories, which, in turn, leads to the complication of pedagogical activity and the transition to learning in a branched digital ecosystem that helps the teacher successfully solve new problems. An analysis of the studied approaches to assessing the digital competencies of teachers shows the need to create a comprehensive teacher support system that includes various elements of a competency-based model and is focused on accompanying the teacher in the process of solving problems of professional and personal growth.

Literature:

1. Ally, M. (2019). Competency profile of the digital and online teacher in future education. *The International Review of Research in Open and Distributed Learning, 20*(2), 1-18. https://doi.org/10.19173/irrodl.v20i2.4206
2. Amhag, L., Hellstrom, L., & Stigmar, M. (2019). Teacher educators' use of digital tools and needs for digital competence in higher education. *Journal of Digital Learning in Teacher Education, 35*(4), 203–220. https://doi.org/10.1080/21532974.2019.1646169
3. Barroso, O., Matos Alcantara, V., & Aguilar Gavira, S. (2019). Analysis of the resources, uses and technological competences of the university teaching staff to understand and improve the learning process of the students. *Revista Iberoamericana de Educación, 80*, 193–217.
4. Bolotov, V.A., & Serikov, V.V. (2003). Competency model: From idea to syllabus, *Pedagogika, 10*, 8-14.
5. Cabero-Almenara, J., & Palacios-Rodríguez, A. (2020). Digital Competence Framework for Educators "DigCompEdu". Translation and adaptation of "DigCompEdu Check-In" questionnaire. EDMETIC Revista de Educación Mediática Y TIC 2020, 9, 213–234
6. Caena, F., & Redecker, C. (2019). Aligning teacher competence frameworks to 21st century challenges: The case for the European Digital Competence. Framework for Educators (DigCompEdu). *European Journal of Education, 54*(3), 1–14. https://doi.org/10.1111/ejed.12345
7. Catalano H., & Catalano, C. (2016). Study on the Use of the Didactic Methodology in the Training of the Native Digital. Proceedings of the 11th International Conference on Virtual Learning, pp. 126–130.
8. Dias-Trindad, S., & Albuquerque, C. (2022). University teachers' digital competence: A case study from Portugal. *Social Science, 11*, 481.
9. Esteve-Mon, F., Llopis-Nebot, M., & Adell-Segura, J. (2020). Digital teaching competence of university teachers: A systematic review of the literature. *IEEE Xplore, 15*(4), 399-406. doi: 10.1109/RITA.2020.3033225
10. Fernandez-Batanero, J., Roman-Gravan, P., Montenegro-Rueda, M., Lopez-Meneses, E., Fernandez-Cerero, J. (2021). Digital Teaching Competence in Higher Education: A Systematic Review. *Educational Science, 11*, 689.
11. Gomez-Pablos, V., Casado-Aranda, L., Matarranz, M., Otto, A. (2022). Teachers' digital competencies in higher education: a systematic literature review. *International Journal of Educational Technology in Higher Education, 19*(8), 1-16. http://dx.doi.org/10.1186/s41239-021-00312-8
12. Kalyar, M.N., Ahmad, B., & Kalyar, H. (2018). Does teacher motivation lead to student motivation? The mediating role of teaching behavior. *Educational Studies Moscow, 3*, 91–119. DOI: 10.17323/1814-9545-2018-3-91-119
13. Khutorskoy, A.V. (2003). Key competencies as a component of student-oriented paradigm. *Narodnoe Obrazovanie, 2*, 58-64.
14. Lubicz-Nawrocka, T., & Kieran, B. (2019). Student perceptions of teaching excellence: An analysis of student-led teaching award nomination data. *Teaching in Higher Education, 24*(1), 63–80. DOI: 10.1080/13562517.2018. 1461620
15. Mattila, A. (2016). The future educator skills in the digitization era: Effects of technological development on higher education. Proceedings of 2015 5th International Conference on e-Learning, ECONF, pp. 212–215.
16. Redecker, C., & Punie, Y. (2017). European Framework for the Digital Competence of Educators. DigCompEdu. Seville: European Commission, Joint Research Centre (JRC).
17. Ross, S. (2015). Are influential teachers born or can they be taught? *Medical Education, 49*, 1058–1060. DOI: 10.1111/medu.12830
18. Saykili, A. (2019). Higher Education in the Digital Age: The Impact of Digital Connective Technologies. *Journal of Education Technology & Online Learning, 2*(1), 1-15.
19. Smyrnova-Trybulska, E., Kommers, P., Morze, N., Malach, J. (2019). *Universities in the Networked Society: Cultural Diversity and Digital Competences in Learning Communities.* Springer.
20. Tejada-Fernandez, J., & Perez, K. (2018). New scenarios and trainers' digital competencies: Towards the professionalization of teaching with ICT. *Profesorado, 22*, 25-51.
21. Zorn, A., Haywood, J., & Glachant, J.-M. (Eds.). (2018). *Higher Education in the Digital Age: Moving Academia Online.* Edward Elgar Publishing Limited.

Primary Paper Section: A

Secondary Paper Section: AM