

COMPETENCIES OF UNIVERSITY TEACHERS AND CHANGES FOR WORKING IN THE KNOWLEDGE SOCIETY

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ABSTRACT

In a post-industrial society, knowledge has replaced capital as the main source of economic development in developed and developing countries. Due to the fact that universities have traditionally been places of research and “knowledge production”, it has become necessary to analyze higher education systems in order to rationalize them and stimulate their maximum efficiency. Universities are required to contribute to the building of a knowledge-based society. At the same time, demands placed on the academic profession are also increasing, as it is expected to improve the quality of teaching, pursue research projects, and deal with managerial and administrative tasks, regardless of the already existing scientific research and teaching workload. Hence, apart from the traditional activities such as research and teaching, competencies of university teachers now also include the ability to do institutional work, cooperation with other institutions, administrative and managerial activities, use of new knowledge in solving social problems, and contribution to the development of civil society and democracy. European education policies particularly emphasize the importance of strengthening the quality of teaching and establishing connections between research and the learning and teaching process in higher education. In Croatia, however, the official system of professional advancement continues to reward research and publication of scientific papers at the expense of teaching competencies, although administrative and guidance roles are gaining more importance as of late. This article aims to examine the attitudes of university teachers towards the competencies needed to work at a university and to establish whether they accept the new roles related to institutional contribution. For the needs of this research, a questionnaire was constructed, whose reliability was determined based on the obtained data and measured using Cronbach’s Alpha coefficient $\alpha=0,882$. The research was based on a quantitative and qualitative methodology which included an analysis of the relevant literature and an inquiry into teachers’ attitudes. SPSS Statistics software package was used for the descriptive and factor analysis of data, and the results showed that the respondents believe research and teaching competencies to be more important than the ones related to the institutional contribution, i.e. those of administrative and managerial character.

KEY WORDS

administrative, guidance and management competencies, psycho-pedagogical competencies, research competencies, university teachers

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INTRODUCTION

Due to the pressure and requirements of both national and international education and economic policies, growing expectations of the society and major changes in the student population, universities all over the world have started to change and question their role, core values and organizational structure [1-7]. The 20th century was marked by a tremendous expansion of higher education. Whereas in the early 20th century elite universities were enrolled only by privileged young people prepared for academic study, nowadays there is a massive student population for whom university education is a chance for improving their own prospects in the labour market, but who lack the corresponding prior knowledge and motivation and are not academically oriented and committed to learning [1, 4, 8]. In economically developed countries, the percentage of students enrolled in higher education institutions has increased from less than 5 % in 1950s to over 50 % in the first decade of the 21st century [1, 3, 4, 9]. In Croatia, in 1991, 39,8 % of the graduated secondary school students enrolled a higher education programme, while by 2004 that percentage has increased to 64,7 % [10]. The increase in student population is also brought about by social benefits of higher education, which are manifested on an individual level through better chances of employment and improvement of quality of life, while on the level of the society they are reflected in the contribution of higher education to progress and growth of national economy and a decrease in the unemployment rate [10]. After Croatia joined the Bologna process, the percentage of enrolled students has increased even further. According to the data provided by the Croatian Bureau of Statistics, 48 540 first-year students were enrolled in the academic year 2005/2006, while in the academic year 2016/2017 the number of enrolled students reached 61 226, which is approximately 26 % more than ten years earlier (Croatian Bureau of Statistics, Students enrolled in higher education institutions in 2005/2006 and 2016/2017).

In the modern-day, post-industrial society, the mission and the role of universities is also affected by a constant expansion of international cooperation between higher education institutions and by technology transfer, along with a continuous mobility of students and teachers and a rapid obsolescence of knowledge [3, 11]. Universities are subject to processes of globalization and are required to meet the needs of globally-oriented societies based on knowledge and market economy. This is why they are forced to compete for financial resources and submit to occasional evaluation and accreditation processes for the purpose of determining justifiability of the way they spend either public or private funds [11, 12]. Jónasson [2] believes there are three predominant university traditions: German (Humboldt's model), French (Napoleon's model) and British (Newman's model), and wonders whether either one of them meets the expectations of modern-day society. The first model advocates integration of research and teaching for the purpose of creating and expanding knowledge and for the purpose of personal development of individuals through science [13]. The second model favours a division into scientific-humanistic and professionally-oriented universities which should provide high-quality academic, i.e. professional education [2]. The third model promotes a broad general education of socially sensitive and ethically upright members of a civilized society, capable of free and critical thinking [14]. Modern higher education should meet all the aforementioned requirements because the model of new, institutionalized society after the Second World War is focused on increased democratization, preservation of human rights, development of science and development planning [1]. A particularly important purpose of modern-day university education is to help students adapt to rapid social and technological changes [8].

The 20th century was characterised by significant differences in the enrolment policies at European universities, the duration and structure of study programmes, the versatility of obtained diplomas, the conditions of employment of teaching staff, and academic freedom [4].

The expansion of higher education depended on conditions of economic and social development in each country, and was organised either as a dual system of higher education divided into universities and polytechnics as in Croatia, or united into a single university system in which some study programmes are more research-oriented, while others are more professionally-oriented. The introduction of the Bologna process (1999) and the creation of the European Higher Education Area (EHEA) for the purpose of achieving synergy in education and research established numerous principles of international cooperation and academic exchange, and outlined the direction in which modern universities should develop [4, 6]. All signatories have committed to adapting their national education systems to the agreed principles by, for example, facilitating mobility of students and higher education staff, allowing international recognition of diplomas, preparing students for a future life of active citizens in democratic societies, supporting their personal development, as well as granting a broad access to higher education and ensuring a competitive and high-quality development of European higher education which would be open to other countries around the world. After the first meeting held in Bologna, education ministers of EU member states met every two or three years in one of European cities to check the implementation of guidelines of the Bologna process, which define priorities and set development goals and standards. By publishing communiqués and recommendations, education ministers continued to support the achievement of the said goals. As some of the extremely important priorities, the ministers have repeatedly emphasized synergy of teaching and research in higher education and mutual contribution of higher education and research to the economic and cultural development of the European society [15, 16]; they agreed it was essential to recognize and support quality teaching in higher education, and to provide opportunities for enhancing academics' teaching competencies [17-19]. Along with other guidelines of the Bologna process, the European Commission has repeatedly emphasised the need for a continuous professional development of teachers.

PEDAGOGICAL AND PSYCHOLOGICAL COMPETENCIES OF UNIVERSITY TEACHERS

In times of rapid and fundamental changes, efficiency, effectiveness and ensurance of high-quality teaching represent a great challenge for higher education institutions. Quality of higher education, recognized and advocated at a political and organizational level, plays a crucial role in implementing innovations and transformations in a society, not only in terms of achievements and reputation of university research, but also in terms of excellence in teaching and learning, as an increasingly important aspect of universities' role [20, 21]. Faced with ever-growing demands, universities are developing educational policies and practices, which will be able to recognize the complexity of the academic context and are using targeted interventions to ensure proper preparation for those teachers who are willing to face the new circumstances. Higher education institutions are responsible for ensuring that their academic staff is well prepared for teaching, while university teachers are responsible for ensuring the best pedagogical and didactic practice and for meeting the expectations of students and the society. As a part of institutional policies and a common response to society's expectations, management of higher education institutions requires teachers to undergo continuous training in teaching. Teaching competence is seen as a complex and valuable aspect of quality of higher education, which cannot be based solely on the knowledge acquired during one's academic career and/or on emulation of more experienced colleagues. Therefore, universities have started developing strategies for improvement of pedagogical, psychological and methodical competencies of teachers in order to modernize and enhance the learning and teaching process, and to encourage change of the concept of teaching and professionalization of teaching in general [22-25].

On an international level, numerous universities have established Centers for teaching and learning excellence and Faculty development, or shorter, Teaching and Learning Centres. The aim of these centres, widely present in the North European and American context, is to organize, prepare and implement pedagogical and psychological training programmes for university teaching staff, whose purpose is to improve their teaching competencies [4, 26]. The activities involve shorter (10 ECTS) or longer (30 to 70 ECTS) training programmes, courses, seminars, workshops, round tables, *peer to peer* monitoring and evaluation of teaching activities, preparation of digital didactic materials, etc. [22, 23, 26, 27]. In some countries, pedagogical and psychological training is a necessary requirement for employment at a university, while in others it depends on teachers' voluntary decision, regardless of whether it is taken into account for career advancement or not. Nonetheless, everyone is recommended to undergo training courses and other pedagogical, psychological and didactic activities both at the beginning of their careers and throughout their working life. In most countries, the organization of such courses is centralized and governed by a competent institution at a national level, while in others it is entrusted to the centres formed at faculties or departments of a given university [22, 23, 26, 27]. In the Republic of Croatia, despite international requirements defined by the European Higher Education Area, there is no systematic teacher training for university teachers, nor is participation in pedagogical-psychological and didactic-methodical training programmes a requirement for employment at a university, except at the University of Osijek. Most universities in the Republic of Croatia have established Centres for Lifelong Learning, which organize various training programmes for improvement of teaching competencies in higher education, while the only university which introduced a six-month programme for improvement of teaching competencies in higher education, intended for associate employees, is the University of Rijeka.

Contrary to the aforementioned situation, over the past few decades this trend has gained momentum in numerous countries around the world, not only through the formal organization of pedagogical and psychological training programmes, but also through numerous research studies analyzing the effects of such programmes on the strengthening of high-quality, efficient university teaching [4, 22-24, 26, 28-31]. The previously conducted research studies have identified two main approaches to teaching: the teacher-centred approach and the student-centered approach, as well as two main concepts of teaching: teaching as knowledge transfer and teaching as organization of active learning for students. The majority of those research studies examined whether and to what extent do training programmes in psychology and pedagogy affect the improvement of the quality of teaching, the change in approach and/or the concept of teaching, and an increase in students' achievements. Teaching in higher education is a rather complex phenomenon, which is why some research studies have shown that pedagogical and psychological training is conducive to adoption of the student-centered approach and to modernization and dynamization of the teaching concept [22, 24, 28, 31]. Other researchers [32] either found no differences in the teaching concept adopted by teachers who attended such courses and those who did not, or they established [33] that the interviewed respondents failed to introduce any innovations in their teaching after the completion of their training programmes due to insufficient support in the workplace. Finally, some authors believe that further research needs to be conducted into the influence of pedagogical and psychological training programmes on professionalization of teaching [25, 31].

The second widely used method for improving the efficiency of teaching is evaluation of teaching, whereby each newly hired assistant is assigned a mentor who monitors his/her research and teaching and periodically reports the findings to the faculty council. Teaching can be mutually monitored and evaluated by two or more teachers who take turns in the peer-to-peer role. Another widespread method is the assessment of inaugural lecture given by the

candidate during the initial appointment into a scientific-teaching grade, which is conducted by an officially formed committee consisting of three members appointed into the same or higher title than the candidate. In Croatia, evaluation of the inaugural lecture and a positive student evaluation are formally taken into account for appointment into higher grades. It is precisely the student evaluation of teaching at the end of each semester or each academic year that raises most controversies in the eyes of researchers and teachers alike [34]. Student evaluation of teaching is one of the aspects of the modern university life which is much debated, and numerous research studies show that this type of evaluation is used as an indicator of the quality of teaching in almost all higher education institutions around the globe [34-39]. Initially, students' evaluation of teaching was intended for informational purposes, as feedback to teachers on how to improve the elements of teaching that students were unsatisfied with. Since the 1970s, the data obtained via student evaluations have been increasingly used for making decisions on the advancement of the teaching staff, although it has not been proved that such evaluations encompass the teacher's ability to encourage learning, i.e. there is no evidence of the links between the evaluation and students' achievements, nor of the effectiveness of the evaluation as a tool for the improvement of teaching [38]. Previously conducted research studies have highlighted numerous unacceptable elements of this type of evaluation of effectiveness of teaching which affect its validity. One of the most frequently raised issues is the connection between teachers' personal characteristics (race, gender, cultural preferences) and their teaching competence, attitude towards their teaching style, student bias in assessment of teachers depending on the level of difficulty of the course in question, teachers' grading leniency, or mistakes caused by the use of survey instruments which have not been tested for validity and reliability, i.e. by a misinterpretation of the obtained data [35, 38]. After a thorough analysis of numerous research studies on students' evaluation of teaching, Spooren, Brockx and Mortelmans [34] claim that its usefulness and validity are still questionable and that its results should not be used as the only indicator of effective teaching.

SCIENTIFIC AND RESEARCH COMPETENCIES OF UNIVERSITY TEACHERS

Most communiqués of European ministers of education emphasize that all levels of higher education need to be based on modern scientific research and its development, and promote innovation and creativity in a society. Quality of research has become the main competitive focus of universities competing for limited funding and relative prestige [40]. Although scientific and research competencies cannot be treated as new competencies in the academic profession, relevant research studies suggest that the changes in the broad area of scientific research activity require acquisition of new competencies for this segment of academic activity. One of the special categories of (new) competencies is associated with the new demands in the context of scientific and research work and complementary competencies – “Modernization of scientific and research techniques and procedures also requires new competencies.” ... “Science changes rather quickly, there are always new developments which one needs to keep abreast of on a daily basis. This also requires new scientific and research competencies” ... “...in order to be a good scientist, one needs to acknowledge new developments, especially in science and research. New developments mean new competencies.” [41; p.153].

Further supporting this claim is a document published about ten years ago entitled *Skills and competencies needed in the research field: Objectives 2020* (according to Ulrich and Dash [42]). This document contributed significantly to the structuring and systematization of scientific and research competencies by means of a comparative study of opinions of researchers from eight research-intensive countries. In this research, the debate on research competencies is centered around a series of crucial questions about the main trends and changes affecting research

institutions and organizations, and about the competencies which researchers will be required to possess in the years to come. Strong globalization pressures, increased openness of the research market, a strong tendency towards mobility of researchers, insistence on increased interdisciplinarity and cooperation between different research teams, and political investments in research and innovation are only some of the factors influencing changes in scientific and research policies. Based on the data from approximately 80 interviews, research skills in this international research study have been grouped into: a) scientific competencies, b) team management and project management skills, and c) personal qualities. The first group of skills includes familiarity with the scientific area, ability to formulate research questions, ability to apply existing knowledge, ability to learn, ability to work in an interdisciplinary environment, and ability to analyze and understand sophisticated IT tools. The second group of skills includes ability to work in a team, communication and language skills, ability to manage a team or a project, awareness of the importance of research and its influence on the community. Personal characteristics and interpersonal skills include creativity, open-mindedness, motivation, adaptability and self-assessment skills. From the aforementioned document, Ulrich and Dash [42] identified the following as the most important new competencies in researchers: well-developed capacity for analysis, including the ability to use sophisticated IT tools; ability to work and cooperate in interdisciplinary environments; ability to develop research networks; language and communication skills; business culture and management skills; awareness of the importance of research and ability to assess its influence on the community. The study provides useful information, poses interesting questions and is thought-provoking, but it also has its shortcomings, the principal among which are the insufficiently developed research methodology and the study of research competencies from the perspective of commercial and technological scientists in research-intensive countries [42-44]. New research competencies necessary for success also involve scientific openness. European Union document entitled *Providing researchers with the skills and competencies they need to practise Open Science* [45] mentions four groups of competencies required for practicing open science. Apart from the professional research skills, researchers also need to have open-access publishing skills and techniques, technical and legal skills for open data management, and science popularization skills.

Perceptions of quality and norms for assessment of important competencies in researchers can develop and change in a short period of time because science changes too quickly, making it impossible to compose long-term lists of necessary competencies. Even though every analysis includes the scientific competence, the manners in which it is assessed change in accordance with technological advances. Instead of subjective opinions about someone's scientific excellence, substantiated criteria such as scientific productivity and citations in relevant journals and databases, such as the Web of Science, Scopus, Google Scholar etc., are increasingly used [46]. Such data can be analyzed in different ways in order to get an objective overview of scientific productivity and level of interest for one's research. In his analysis of characteristics of a good scientist-researcher, Sumpter [46] also mentions the influence of one's research outside the academic community, i.e. on the society and economy, governance and guidance of a research team, and personal characteristics such as objectivity, curiosity, ability to identify important research topics, communication skills, ability to cope with failure, commitment to work, and integrity. Integrity is mentioned last because Sumpter [46] often finds it to be questionable, which he supports with his own experience about non-ethical behaviour of university teachers in reviewing numerous scientific articles. He has, for example, noticed bias in the interpretation of research findings, exaggeration, especially in titles and abstracts of scientific articles, figures which either distort the data or fail to fully present them, failure to quote relevant articles written by other scientists, excessive quotation of one's own work, disregard for restrictions and conflicts of interest in research, etc.

According to Stull and Ciappio [47], some of the key qualities of successful scientific researchers include passion for one's area of expertise, resilience, focus on the details while maintaining the vision, creative thinking, determination, professionalism, self-motivation, ability to work in a team, ability to communicate effectively, and openness to new ideas. Apart from the ability to work in a team, Stefanadis [48] mentions diligence, open-mindedness, knowledgeable, resourcefulness, precision in the presentation of data, and critical thinking. Due to an increase in the volume of international team research, especially in health research, Parker and Kingori [49] have studied the factors which scientists and other research participants identify as important for a successful research cooperation. The respondents have listed eight factors they see as essential in judging the merits of active participation in research: opportunities for active involvement in cutting-edge, interesting science; effective leadership; competence of potential partners in and commitment to good scientific practice; capacity building; respect for the needs, interests and agendas of partners; opportunities for discussion and disagreement; trust and confidence; and, justice and fairness in collaboration. Apart from these, they also emphasize capacity building, which is understood as the potential for opportunities to increase scientific competence and expertise of both experienced and younger scientists.

Langfeldt et al. [50] offer a novel framework to study and understand research quality across three key dimensions: quality notions that originate in research fields (Field-type) and in research policy spaces (Space-type), those stemming from the existing studies on "good research", and those which stem from different sites where notions of research quality emerge, are contested and institutionalised (scientific journals, conferences, knowledge communities and similar). Each of these elements contributes to the development of criteria and indicators which define a good research and affect research practice. Notions of research quality originating in specialized knowledge communities require research to be original, reliable, relevant to the field, useful for further knowledge production, reproducible, scientifically based and to use effective methods and reliable and valid instruments. Such research quality notions are enforced predominantly through peer judgement and peer review practices, which are used at multiple selection points, including recruitment and promotion of research staff, publishing in scientific journals, conference participation, and access to national or international resources. Another source of research quality criteria are the published scientific articles on the topic, which often distinguish between elements for assessment of quantitative and qualitative research. Literature dealing with the quality of quantitative research often identifies the following as crucial quality criteria: originality, credibility, reliability and scientific value or social benefits of research [50-52], i.e. rigour, validity, reliability, transferability and possibility of generalization [53, 54]. According to Cameron [54], another criterion for assessment of qualitative research is credibility, defined as congruence with reality; transferability, defined as applicability to other situations and contexts; dependability, i.e. detailed insight into the employed methods and instruments; and objectivity in the interpretation of data obtained from informants. Brinkmann [55] identifies two basic criteria for the assessment of qualitative research: validity, as the potential to improve reality, and objectivity in the interpretation and description of the object of the study. According to this author, a good qualitative researcher has to follow high ethical standards and be rather sensitive to beliefs and feelings of respondents, as well as to abide by scientific rules of research, while university professors have the responsibility of being role-models and shape the ethical conduct of young researchers who will bring about changes through best practices based on scientific evidence.

Within the hierarchical organization of universities, advancement in one's academic career mostly depends on published articles, while the quality, quantity and presence of scientific

articles in relevant databases also serves as an indicator of success for the purpose of obtaining financial support for research on a local, national or international level. Writing and publishing high-quality scientific articles is believed to be a university professor's basic skill, but to have one's work recognized for its quality requires additional skills, particularly those related to the selection of a relevant journal or publisher.

ADMINISTRATIVE AND MANAGERIAL COMPETENCIES OF UNIVERSITY TEACHERS

Changes which higher education has been facing over the last few decades have resulted in an increasing importance of managerial, i.e. leadership or governance competencies in university teachers. The need for good governance has increased for several reasons, primarily because higher education institutions, as beneficiaries of public or private funding, need to effectively adapt to the growing and changing demands of society and labour market. They are given greater autonomy, which in turn requires ability and responsibility in managing human and financial resources, modernization of the existing study programmes and development of new ones, and quality assurance of teaching and research [56-58]. Responsible and transparent management is necessary at the level of universities, faculties, departments and other organizational units [59].

Numerous authors draw attention to the use of different terminology for governance and leadership functions in higher education institutions [6, 58-66]. Governance refers to the organization of governing bodies, distribution of responsibilities, standards of conduct of members of the management, procedures and rules related to financial and developmental decision-making for the purpose of achieving strategic goals [67]. Management comprises planning, organizing, directing and controlling activities of staff members aimed at the achievement of a series of goals of a higher education institution. According to a research study conducted by Potgieter and Coetzee [68], a manager needs to be a good financial expert, strategic planner, manager of diversity and conflict, successful communicator, quality controller, change implementer, coordinator and representative of senior management bodies, whose role should be based on supervision and control of delegated operative tasks. Academic leadership encourages and motivates members of the academic community to achieve the strategic vision of a university through collaboration, interaction and conversation, and responds productively to the current changes in education and society [61, 67, 69]. Some authors [56, 70] see institutional leadership, management and administration as components of governance.

For the majority of university professors, assuming governance roles and responsibilities is not a priority [61, 71], even though a leader is a person "who holds superior power which enables him/her to influence, lead and control people around" [69; p.93]. They are appointed from a collective, among reputable teachers and researchers with outstanding achievements based on research and academic recognition, but their managerial skills are questionable. Over the past ten years, management, i.e. leadership competencies have been researched from different perspectives. These competencies are the research topic of doctoral dissertations [72-74] and scientific articles on possible abuse of position within faculty structures [75; p.160], on the needs and perception of effective academic management and the discrepancy between institutional expectations and actual competencies of academic leaders [76], on the importance of acquiring leadership competencies within university study programmes [77], on the lack of women in senior management positions [78, 79], and on the importance of a personal vision of education and running an institution by an effective leader [80]. Particularly frequent are research studies on characteristics and skills necessary for an effective leadership and management of higher education institutions. Based on the examined research studies, Potgieter and Coetzee [68] concluded that the heads of higher education are

often poorly prepared for their managerial role and that they need training to develop specific competencies in order to perform their function effectively. The authors have divided the management competencies in five different dimensions: planning and organization, leadership, control, specific aspects of human resources and personal characteristics. Their findings could serve as a potential basis for the development of training programmes for leaders in higher education environments. Ott and Mathews [81], who have explored the importance of effective administrative management and improved cooperation between the faculty management and administrators, claim that the conditions for a more effective shared governance arise from the balance between the following five elements: trust, shared sense of purpose, clear understanding of the issues at hand, adaptability and productivity.

Basing their conclusions on numerous research studies, Turk and Ledić [6] claim that there are two opposing viewpoints about characteristics of a higher education leader. According to them, on the one hand there is the traditional attitude, typical of a hierarchical system, where the leader is usually an experienced individual, “a person who builds and establishes relationships, who is a good communicator and who possesses a high level of social intelligence, who represents his/her institution, team or themselves in public, who bases his/her work on high ethical and professional principles and promotes the culture of quality in every aspect of his/her work” [6; p.61, according to Wisniewski, 2011]. On the other hand, however, they cite authors such as Dávila Quintana, Mora Ruiz and Vila Lladosa [82], according to whom leaders should possess the basic skills of social intelligence, immanent to every person, which are often innate or based on the upbringing in the immediate family, school or broader community, but can also be partially learned or acquired. “Therefore it is possible for a young person at the beginning of his/her academic career to build credibility and authority of a leader, thanks to his/her (innate) abilities” [6; p.61, 82]. Kaminskiene and Gedminiene [69] have examined the relevant literature on leadership in higher education in order to determine which topics are explored by research studies about educational leadership and what are the perspectives of an innovative leader in higher education. They have emphasized that there is no unique answer to the question how to become a good leader and that the opinion according to which leadership traits such as charisma and social intelligence are innate still prevails. Other authors, however, believe that leadership skills can be learned, identifying the following as characteristics of a good leader: ability to guide and experience with guidance, ability to adapt to changes, openness in the exchange of information and ideas, a clear vision of development, allowing colleagues to participate in the decision-making process, providing support and opportunities for development, professional autonomy and recognition of achievements of other members of the collective, and personal characteristics such as credibility, reliability, selflessness, flexibility and fairness. Leadership style is determined by specific skills and behaviours, and among a number of different leadership styles used in higher education, the most frequently mentioned ones are the transactional and transformational leadership styles [69, 83-86]. A transactional leader enforces rules, sets clear expectations, monitors the performance, rewards success and punishes failure, leaving little room for creativity. A transformational leader encourages members of an institution to have great expectations, motivates them to achieve personal goals by offering assistance in their achievement, and strongly supports innovativeness and creativity. Even though these two leadership styles differ significantly, numerous authors insist that both are necessary in each education institution. Turk and Ledić conclude that “leadership competencies in higher education equally apply to all stages of an academic career, however, they need to be developed in accordance with the environment and the activities to which they refer” [6; pp.61-62].

RESEARCH METHODOLOGY

The attitudes of university teachers were analyzed by means of a descriptive and causal non-experimental method of pedagogical research [87], along with surveying, assessment of attitudes and analysis of pedagogical documentation.

Sample of respondents

Table 1. Sample structure with regard to title and scientific area.

Title	F	%	Scientific area	F	%
Lecturer	11	6	Natural sciences	7	3,8
Senior lecturer	20	10,9	Technical sciences	10	5,4
Teaching assistant	24	13	Biomedicine and health	4	2,2
Postdoctoral researcher	6	3,3	Biotechnical sciences	2	1,1
Assistant professor	62	33,7	Social sciences	86	46,7
Associate professor	35	19	Humanities	54	29,4
Full professor	26	14,1	Artistic area	3	1,6
			Interdisciplinary area of sciences	13	7,1
			Interdisciplinary area of the arts	5	2,7
Total	184	100	Total	184	100

Table 2. Sample structure with regard to years of service and county.

Years of service	F	%	County	F	%
1 to 5	15	8,2	Istria	63	34,2
6 to 10	23	12,5	Primorje-Gorski Kotar	5	2,7
11 to 15	50	27,2	Zadar	2	1,1
16 to 20	34	18,5	City of Zagreb	21	11,4
21 and more	60	32,6	Split-Dalmatia	63	34,2
No answer	2	1	Osijek-Baranja	7	3,8
			Koprivnica-Križevci	11	6,0
			Varaždin	9	5,0
			No answer	3	1,6
Total	184	100	Total	184	100

As many as 184 university professors from various counties of the Republic of Croatia participated in the research. Most of them were from the Istria and Split-Dalmatia County (34,2 %). As can be seen in Tables 1 and 2 the sample is very dispersive (scattered) and includes respondents having scientific and teaching titles from the scientific, artistic and interdisciplinary areas of science and arts. According to their title, most of the sample respondents were assistant professors (33,7 %), while according to the scientific area, most of them belonged to social sciences (46,7 %). When it comes to years of service, most of the respondents (32,6 %) have more than 21 years of service. The research was conducted via an online questionnaire which could be responded from the beginning of January to the end of July 2020.

Research instrument

Due to the lack of an already existing instrument that would fit the needs of this research, the authors have prepared a questionnaire entitled *Pedagogical, psychological and other competencies of university teachers* suitable for the higher education context in the Republic of Croatia. It was constructed especially for this purpose, but is based on similar research conducted in Croatia and abroad. (Examples of consulted research studies [6, 88].

The respondents were asked to indicate the extent to which they agree or disagree with each statement by using the Likert-type five-point scale: “I do not agree at all”, “I do not agree”, “I cannot evaluate”, “I agree”, “I completely agree”, i.e. “not at all”, “a little bit”, “I cannot evaluate”, “a lot”, “very much”. The constructed instrument was checked for satisfactory metric characteristics. Sensitivity was tested by means of measures of dispersion, construct validity was tested by means of factor analysis, and reliability was tested by means of the internal consistency method – Cronbach’s alpha $\alpha = 0,882$. To determine the dimensionality of the investigated constructs, factor analysis of principal components was used. Kaiser-Guttman’s criterion was used for determining the number of significant factors, while the factorial structure has been defined either as single-factorial or multi-factorial according to the number of extracted factors with the characteristic root higher than 1.

Results and discussion

Table 3. Results of the factor analysis of the *Pedagogical, psychological and didactic competencies* scale and the descriptive analysis of the items of the scale.

Pedagogical-didactic and social competencies of university teachers	Factor*		Arithmetic mean	Standard deviation
	1	2		
Defining clear goals and outcomes in the learning and teaching process	0,962		4,342	0,773
Use of different teaching methods in accordance with the learning outcomes	0,906		4,342	0,759
Planning and delivering a class	0,836		4,413	0,711
Use of different procedures for assessment and grading of students’ achievements in accordance with learning outcomes	0,793		4,141	0,797
Understanding and use of theories on which the learning and teaching process is based	0,736		4,065	0,878
Adaptation of the teaching process for students with special needs	0,419		4,005	0,890
Use of e-learning and its integration into the teaching process	0,385		3,913	0,982
Teaching students to become socially responsible and active citizens		0,880	4,266	0,802
Knowledge of the principles of negotiation and conflict resolution		0,816	3,923	0,902
Use of research findings in teaching		0,775	4,059	0,850
Creating an environment that will stimulate students to learn		0,718	4,521	0,660
Familiarity with ethical principles in teaching and research		0,646	4,244	0,829
Use of active learning techniques in the teaching process		0,563	4,462	0,738

*to facilitate the interpretation of data, only those factorial saturations whose absolute value is greater than 0,3 are shown

The conducted factor analysis has shown that *Pedagogical-didactic and social competencies of university teachers* are a multi-dimensional construct. Two factors with the characteristic root greater than 1 have been extracted, which account for 61,564 % of the scale variance. Considering the size of the coefficient in the pattern matrix shown in Table 3, the first factor was named *Pedagogical-didactic competencies* (items 1 to 7), while the second was named *Social competencies* (items 8 to 13). On the basis of the aforementioned factor analysis, two eponymous sub-scales have been constructed.

The results of item analysis (Table 3) for each item of the *Pedagogical-didactic competencies* subscale show that the lowest mean value ($M = 3,91$) and the highest standard dispersion of results ($SD = 0,982$) were obtained for the item *Use of e-learning and its integration in the teaching process*. The highest mean value ($M = 4,41$) and the lowest standard dispersion of results ($SD = 0,71$) can be observed for the item *Planning and delivery of a class*.

The results of item analysis for each item of the *Social competencies* subscale showed the lowest mean value ($M = 3,92$) and the highest standard dispersion of results ($SD = 0,90$) for the item *Knowledge of the principles of negotiation and conflict resolution*. The highest mean value ($M = 4,52$) and the lowest standard deviation ($SD = 0,66$) were obtained for the item *Creating an environment that will stimulate students to learn*.

On the basis of the conducted analysis, it can be concluded that the respondents find all the listed pedagogical-didactic and social competencies to be either important or very important in their work with students. Apart from the traditional importance attributed to the planning and delivery of a class, the obtained highest average values indicate that students are increasingly becoming equal partners in the education process who are expected to learn actively and acquire knowledge autonomously, while the role of a teacher is to set up a high-quality learning environment and organize didactic activities. The interviewed teachers demonstrate awareness of the importance of an innovative and dynamic approach to student-centered teaching, in which the teacher is primarily concerned with students' acquisition of skills or concept development and attainment of a higher level of learning outcomes. Furthermore, the results show that the respondents consider students as adults and responsible persons who autonomously form relationships with others, and that there is no need for teachers to be familiar with the principles of negotiation and conflict resolution. Slightly surprising is the low mean value obtained for the item *Use of e-learning in the teaching process*, considering the current emphasis on on-line teaching, especially during the pandemic caused by the SARS-CoV-2 virus.

The conducted factor analysis has shown that *Scientific and research competencies of university teachers* are a multi-dimensional construct. Two factors with the characteristic root greater than 1 have been extracted, accounting for 61,015 % of the scale variance. Considering the size of the coefficient in the pattern matrix shown in Table 4, the first factor was named *Collaboration and management in scientific research* (items 1 to 6), while the second one was named *Methodological research literacy* (items 7 to 10). Based on the aforementioned factor analysis, two eponymous subscales have been constructed.

According to the results of item analysis (Table 4) for each item of the *Cooperation in research* subscale, the lowest average mean ($M = 3,71$) and the highest standard deviation ($SD = 0,96$) can be observed for the item *Familiarity with programme/project management*. The highest arithmetic mean ($M = 4,15$) and the lowest standard deviation ($SD = 0,76$) were obtained for the item *Conducting reviews in one's own scientific area*.

The results of the item analysis (Table 4) for each item of the *Methodological research literacy* subscale shows that the lowest median value ($M = 4,08$) and the highest standard

Table 4. Results of the factor analysis for the *Scientific and research competencies* scale and descriptive statistics of the items of the scale.

Scientific and research competencies of university teachers	Factor*		Arithmetic mean	Standard deviation
	1	2		
Awareness of project funding opportunities in one's area of research interest	0,824		3,739	0,950
Familiarity with programme/project management (writing, application and management of programmes/projects)	0,801		3,706	0,964
Building and maintenance of (international) research networks	0,787		4,021	0,874
Supervision and counseling of junior colleagues engaged in scientific research	0,783		4,168	0,855
Work in an interdisciplinary environment	0,666		4,119	0,840
Conducting reviews in one's own scientific area	0,584		4,146	0,764
Application of basic principles of scientific writing and publishing		-0,868	4,369	0,712
Use of effective strategies for critical appraisal and analysis of scientific literature		-0,804	4,320	0,701
Use of effective strategies for searching scientific and professional literature		-0,780	4,315	0,752
Use of research methodology and statistical processing of data		-0,693	4,087	0,942

*to facilitate the interpretation of data, only those factorial saturations whose absolute value is greater than 0,3 are shown

dispersion of results ($SD = 0,94$) were obtained for the item *Use of research methodology and statistical processing of data*. The highest mean value ($M = 4,37$) was obtained for the item *Application of basic principles of scientific writing and publishing*, while the lowest standard deviation ($SD = 0,70$) was obtained for the item *Use of effective strategies for critical appraisal and analysis of scientific literature*.

Relatively high mean values attributed to most of the items indicate that the respondents consider all the listed scientific and research competencies to be important for working at a university. While placing less importance on administrative skills, such as preparing the articlework for the implementation of a scientific project and technical skills of statistical processing of data, which can be entrusted to the experts in the field, the respondents attribute more importance to competencies such as familiarity with scientific writing and publishing, conducting reviews and use of effective strategies for searching scientific and professional literature. Research by Höhle and Teichler [9], conducted at an international level, indicates that research achievements are still seen as more important for appointment into higher grades than teaching achievements, and that there is an imbalance between teaching and scientific work. It also seems to indicate that more emphasis is placed on conducting socially relevant research. However, in order to ensure a systematic presence of universities in the economy, culture and society, and in accordance with the Rome Ministerial Communiqué [20], teaching needs to be granted the same status as research. Also, standards and guidelines for quality assurance in the European Higher Education Area [89] emphasize that the quality of higher education is the result of a well-balanced relationship between learning, research and innovation. While scientific research guarantees a university's prestige, teaching strengthens its public image, which is why both are crucial for the academic community and should be equally valorized.

Table 5. Results of the factor analysis of the *Leadership competencies and contribution to the institution* scale and descriptive statistics of the items of the scale.

Leadership competencies and contribution to the institution	Factor*		Arithmetic mean	Standard deviation
	1	2		
Familiarity with the principles of strategic planning	,924		4,010	,855
Introduction of innovations and changes in the work of the institution / department / chair	,877		4,157	,857
Management of financial resources of the institution / department / chair	,774		3,902	,893
Defining ethical values of the institution / department / chair	,756		4,288	,835
Connecting with the social and economic community	,660		4,157	,783
Performing managerial duties	,416		3,641	,970
Editing and publishing of scientific journals		,939	3,864	,891
Organization of scientific and professional conferences		,937	3,956	,841
Familiarity with the local / regional cultural heritage		,410	3,929	,887

*to facilitate the interpretation of data, only those factorial saturations whose absolute value is greater than 0,3 are shown

The conducted factor analysis has shown that *Leadership competencies and contribution to the institution of university teachers* are a multi-dimensional construct, which is why two factors with the characteristic root greater than 1 have been extracted, accounting for 62,950 % of the scale variance. Considering the size of the coefficient in the pattern matrix shown in Table 5, the first factor was named *Management of an educational institution* (items 1 to 6), while the second factor was named *Business ethics and sustainable development* (items 7 to 9). On the basis of the aforementioned factor analysis, two eponymous subscales have been constructed.

According to the results of the item analysis (Table 5) for each item of the *Management of an educational institution* subscale, the lowest average mean ($M = 3,64$) and the highest standard dispersion of results ($SD = 0,97$) have been obtained for the item *Performing managerial duties*. The highest mean value ($M = 4,28$) was obtained for the item *Defining ethical values of the institution*, while the lowest standard deviation ($SD = 0,78$) was obtained for the item *Connecting with the social and economic community*.

Results of the item analysis for the *Business ethics and sustainable development* subscale show the lowest average mean value ($M = 3,86$) for the item *Editing and publishing of scientific journals*, while the highest mean value ($M = 3,95$) was obtained for the item *Organization of scientific and professional conferences*. Editing a scientific journal is a rather challenging task, especially when its survival depends on inclusion in international databases, which is very difficult to achieve.

Results presented in Table 5 show that a somewhat lower mean value was attributed to the majority of items in comparison to the pedagogical-psychological and research competencies,

which leads to the conclusion that the respondents believe successful engagement in research and teaching to be more important for a university career than the management of a faculty or a department, and editing or publishing of journals. The competencies which they find least attractive are management of financial resources of the institution and performance of managerial duties. This is understandable, because numerous research studies on academic leadership and management confirm that these are rather complicated and demanding functions, associated with a considerable amount of stress and a high level of burnout [61, 90, 91]. Furthermore, those employed in higher education mostly do not respond well to authoritative managers and leaders due to a deep-rooted need for collegiality, counseling and academic freedom [62].

The conducted factor analysis has shown that the *Acquisition and importance of pedagogical and psychological competencies of university teachers* is a multi-dimensional construct. Two factors with the characteristic root greater than 1 have been extracted, which account for 59,828 % of the scale variance. With regard to the size of the coefficient in the pattern matrix shown in Table 6, the first factor was named *Importance of pedagogical and psychological competencies* (items 1 to 5), while the second one was named *Acquisition of pedagogical and psychological competencies* (items 6 and 7). On the basis of the aforementioned factor analysis, two eponymous subscales have been constructed.

Table 6. Results of the factor analysis of the *Acquisition and importance of pedagogical and psychological competencies of university teachers* scale and the descriptive statistics of the items of the scale.

Acquisition and importance of pedagogical and psychological competencies of university teachers	Factor*		Arithmetic mean	Standard deviation
	1	2		
Pedagogical and psychological education is necessary for maintaining a high level of quality of university teaching.	-0,853		4,173	1,009
Formal acquisition of pedagogical and psychological competencies is an unnecessary waste of time.	0,833		1,739	,968
Upon employment at the university, teachers who do not have pedagogical and psychological training should be required to complete formal courses in the field.	-0,730		3,771	1,211
In my opinion, pedagogical and psychological competencies are not useful for professional advancement.	0,703		1,728	1,102
A thorough subject-matter knowledge is sufficient for a high-quality university teaching.	0,605		2,255	1,147
Pedagogical and psychological competencies can be acquired after employment.		0,879	3,635	1,082
University teachers acquire pedagogical and psychological competencies with many years of practical experience.		0,414	3,369	1,063

*to facilitate the interpretation of data, only those factorial saturations whose absolute value is greater than 0,3 are shown

According to the results of the item analysis (Table 6) for each item of the *Importance of pedagogical and psychological competencies* subscale, the lowest mean value ($M = 1,73$) was obtained for the item *Formal acquisition of pedagogical and psychological competencies is an unnecessary waste of time* and ($M = 1,72$) for the item *In my opinion, pedagogical and psychological competencies are not useful for professional advancement*. The highest arithmetic mean was obtained for the item *Pedagogical and psychological education is necessary for maintaining a high level of quality of university teaching* ($M = 4,73$). The conducted analysis shows that the respondents believe formal acquisition of pedagogical and psychological competencies to be necessary not only for appointment into higher grades, but also for a high-quality university teaching. In response to the demands of the education policy to improve the quality of university-level teaching, the issue of mandatory pedagogical courses for university teachers is being considered or debated in several European countries (e.g. Finland, Norway, Sweden), although it still has not been determined for whom it should be mandatory [31]. Most of the analysed research studies seem to suggest that pedagogical and psychological training is necessary for early-career university teachers [22, 24, 28, 31].

The item *A thorough subject-matter knowledge is sufficient for a high-quality university teaching* obtained a low mean value ($M = 2,25$) and high standard deviation ($SD = 1,147$), which means that the respondents are not unanimous in their support of such a thesis, although there are still those who agree with it. At a time when pedagogical training courses have an increasingly important role in the professionalization of higher education teaching, a thorough knowledge of the subject matter is certainly not sufficient for high-quality teaching.

The results of the item analysis (Table 6) for each item of the *Acquisition of pedagogical and psychological competencies* subscale show that relatively low arithmetic means ($M = 3,36$) have been observed for the item *University teachers acquire pedagogical and psychological competencies with many years of practical experience* and for the item ($M = 3,63$) *Pedagogical and psychological competencies can be acquired after employment*. High standard deviations ($SD = 1,06$ and $SD = 1,08$) were obtained for both items. These results indicate a high level of respondents' awareness of the small impact of professional experience on the improvement of pedagogical and psychological competencies. The fact that experience alone does not guarantee more effective teaching is confirmed by Marsh [92] who, in his 13-year-long longitudinal research, reached the conclusion that the majority of teachers who received relatively low grades at the beginning of the research study were awarded the same grades at the end of the research, while those who initially received relatively high grades maintained them throughout the course of the research.

The conducted factor analysis has shown that the *Manners of acquiring pedagogical and psychological competencies of university teachers* are a multi-dimensional construct, which is why two factors with the characteristic root greater than 1 have been extracted, accounting for 51,981 % of the scale variance. Considering the size of the coefficient in the pattern matrix shown in Table 7, the first factor was named *Formal acquisition of pedagogical and psychological competencies* (items 1 to 5), while the second one was named *Non-formal acquisition of pedagogical and psychological competencies* (items 6 and 7). On the basis of the aforementioned factor analysis, two eponymous subscales have been constructed.

The results of the item analysis (Table 7) for each item of the *Formal acquisition of pedagogical and psychological competencies* subscale show that the lowest average mean value ($M = 2,55$) and a high standard dispersion of results ($SD = 1,26$) were obtained for the item *through post-graduate education*. A low arithmetic mean value ($M = 2,79$) was obtained for the item *through the pedagogical-psychological set of courses, after employment at a*

Table 7. Results of the factor analysis for the *Manners of acquiring pedagogical and psychological competencies of university teachers* scale and the descriptive statistics of the items of the scale.

Manners of acquiring pedagogical and psychological competencies of university teachers	Factor*		Arithmetic mean	Standard deviation
	1	2		
at targeted seminars and professional training courses	0,681		3,722	1,113
through the pedagogical-psychological set of courses, after employment at a university	0,681		2,798	1,413
through on-line courses	0,631		2,837	1,274
through the pedagogical-psychological set of courses at the graduate study programme	0,614		3,260	1,353
through post-graduate education	0,598		2,559	1,266
by observing examples of good practice of colleagues from one's own or other university institutions		0,870	3,722	,988
through study visits to other university institutions		0,782	3,456	1,080

*to facilitate the interpretation of data, only those factorial saturations whose absolute value is greater than 0,3 are shown

university, while the highest arithmetic mean value ($M = 3,72$) was obtained for the item *at targeted seminars and professional training courses*.

The results of the item analysis for the *Non-formal acquisition of pedagogical and psychological competencies* subscale shows that the respondents agree in their evaluation of the items *by observing examples of good practice of colleagues* ($M = 3,72$) and *through study visits to other university institutions* ($M = 3,45$) as manners of acquiring pedagogical and psychological competencies. On the basis of the obtained results, it can be concluded that the majority of respondents believe that observing the examples of good practice is more important for the development of teachers' competencies than formal pedagogical and psychological education.

The obtained results seem to indicate respondents' mistrust in the effectiveness of formal pedagogical and psychological training courses, which is consistent with the controversial results of most research studies in the field. Even though some research studies indicate that it is necessary to additionally verify the effectiveness of various pedagogical training programmes in order to confirm their ability to improve the quality of teaching [25, 31], the international movement for professionalization of higher education teaching advocates the introduction of compulsory pedagogical training programmes, at least at the beginning of one's career.

CONCLUSION

Higher education institutions are constantly under pressure to adapt quickly and efficiently to the growing and changing demands of the society and labour market. A greater emphasis on the quality of learning and teaching has been brought about by increased globalization, development of knowledge-based economy, international coordination of professional qualifications, acquisition and dissemination of new knowledge, as well as by the request that universities should take responsibility for solving various social problems and contribute to the development of democracy and civil society [4, 25]. Therefore, modern-day university teaching requires support for professionalization and formal evaluation of teachers' skills as necessary university strategies for modernization of the teaching and learning process. Professionalized teaching is able to meet students' needs and high academic standards more

efficiently, and is a condition for survival of higher education institutions. This is why a growing number of institutions provide shorter or longer training programmes, courses and/or workshops for pedagogical and psychological education of interested teachers. Teaching is still considered subordinate to research, to which greater importance is attached in appointment into higher grades, although this approach does not support the development of teaching competencies in higher education. However, education policies in the European Higher Education Area believe that the key to a successful university education lies in synergy between research and teaching, which need to be student-centered and accompanied by strengthening of the quality of teaching. Changes in higher education have resulted in changes in work environments, activities and demands placed on academic staff. These changes have led to a diversification of the existing and appearance of new jobs, resulting in the need to re-define traditional academic competencies and develop new ones. Production and dissemination of knowledge, i.e. research and teaching, are no longer the only activities in the profession. Traditional competencies required for working at a university are becoming ever more complex, with the addition of new ones related to organization, management and administrative activities in academic institutions, and to an institution's engagement in the provision of services to the community, so that universities might contribute to the development and improvement of the economic, cultural and civil life.

The respondents who participated in the survey conducted for the purpose of this article recognize the importance of research and pedagogical-psychological competencies, although Croatia still has not introduced appropriate forms of professional support for the development of those competencies, while the existing legal provisions on monitoring and evaluation of all types of activities of university teachers are changing slowly. Respondents believe that the least important competencies are the one related to academic leadership and governance, most likely because those are very complicated and challenging functions, associated with a considerable amount of stress and additional workload. The obtained results indicating respondents' doubts about the impact of formal pedagogical and psychological training on the improvement of quality of university teaching are contradictory, since respondents assign great importance to such training, but attach little importance to the existing formal manners of acquiring teaching competencies. Furthermore, although respondents do not believe that experience can significantly improve the quality of teaching, they assigned relatively high grades to observing examples of good practice, even higher than those assigned to the formal pedagogical and psychological training.

Unfortunately, this research confirms the findings of previous research studies [93, 94], according to which university teachers do not attach enough importance to formal acquisition of pedagogical and psychological competencies, which is not one of the requirements for appointment into higher grades. These findings foreshadow numerous challenges for the future development and transformation of the academic profession, both in Croatia and abroad. Furthermore, this research raises several other research questions and current topics, such as the competitiveness of researchers, (academic) freedoms of university staff, stronger emphasis on the research role of some universities, and the need for competency profiling of the teaching profession.

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