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# Cognitive University Teacher Readiness for Knowledge Management Empirical Research Findings

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## Abstract

A distinctive feature of the society cognitive development stage is the emergence of collective intelligence and the production of economically competitive knowledge at higher education institutions. Modern educational process is similar to the knowledge management, and this turns the university teacher to an organizer, navigator and coordinator of a student's learning trajectory. Innovative pedagogical activity implies readiness of a university teacher for knowledge management in the course of pursuing his/her professional activities. The pilot study conducted at Samara University has revealed non-mature structural components of cognitive university teacher readiness for knowledge management (value-motivational, instrumental-digital, scientific-research, evaluation-analytical, interactive-communicative, and academic-and-business components), which may hinder the HEIs transition to "University 4.0" model. The article presents the findings of empirical research carried out to investigate the cognitive university teacher's readiness for knowledge management, with due regard to comparative, correlation and factor analysis of the components that make up the readiness structural scheme. The sample includes 120 teachers and scholars. The goal of research study is to identify and strengthen the relations both between the components of readiness and between the dominant indicators of structural elements. The results shows that the pedagogical tools developed for forming readiness of a cognitive university teacher for knowledge management have a positive impact on their professional growth and innovative educator development.

*Keywords:* cognitive university, knowledge management, 4.0 University model, system for formation of cognitive university teacher readiness for knowledge management.

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## Introduction

Modernization of higher education involves ensuring the viability of competitive strategy of the university, which fills the educational process with technologies of active and activity-based teaching and learning. Transformations of the university as a social institution within "University 1.0" - "University 4.0" models demonstrate the change and expansion of higher education in society at different stages of socio-economic development (Table 1) (Golovko et al., 2014; Efimov & Lapteva, 2017; Kuznetsov & Engovatova, 2016; Neborsky, 2017). The changes in the content, significance and volume of knowledge in society, forms of knowledge transfer, shift in the teachers role resulted in the transition to the next model. With its development, not only the volume of accumulated information increased, but also the nature of knowledge itself changed (Wissema, 2016; Zhuravleva, 2012).

Table 1. Comparative analysis of university models

Model	University 1.0	University 2.0	University 3.0	University 4.0
Goal	Training for key stakeholders, creating an elite	Increase in the number of educated population	Technology development and innovation creation	Foresight of knowledge about the future, solving global problems
Key functions of university	Training	Training + research	Training + research + capitalization	Training + research + capitalization + creativity
Key stakeholders	Urban community, church	State	State and industry, individuals	Society, individuals
Organizational union	Teachers and students	University and State	University, State and Business	Open platform for interaction
Society's expectations of a graduate	Compliance with professional culture	Compliance with the activity norms, ability to hypothesize	Training of qualified and competitive personnel	Training the "knowledge worker"
Teacher's role	Presenter (Broadcaster)	Repeater	Educational process manager	Tutor and expert, scientific mentor
Knowledge transfer methods	Traditional	Active	Interactive	Digital
Types of knowledge transfer	Reading, monologue, listening, dispute	Dialogue	Group interaction	Networking

### **Purpose and objectives of the study**

Currently in pedagogical practice there are prerequisites for teachers to solve innovative tasks in the settings of cognitive university formation, but integration into new educational environment requires resolution of the overdue contradictions between the increasingly complex requirements for the educational process organization with due regard to knowledge management in cognitive university and teachers unpreparedness for knowledge management in in the course of pursuing their professional activities. The purpose of the study is to conduct a comparative, correlation and factor analysis of the summative and formative assessment on the formation of a cognitive university teacher for knowledge management.

### **Literature review**

At cognitive University 4.0, the teacher-to-student interaction is based on problem-solving, when students search for options to solve urgent problems based on contradiction between available and necessary knowledge. Training the “knowledge workers”, who carry out professional activities in the cognitive society, involves arranging special settings and teacher’s efforts to facilitate activity, initiative, independence and creativity of students; creating interdisciplinary and transdisciplinary knowledge. This becomes possible provided that effective teaching strategies are used and the interaction between participants in the educational process is organized in the way in which there are no diametrically-opposed positions of the teacher and the student (Barnett, 2012; Bleiklie, 2005; Fiofanova, 2017; Human resource management of higher education institution, 2019; Rudneva, 2019). In other words, the modernization of higher education process makes its identical to knowledge management and has changed the role of a university teacher from information presenter (broadcaster) to tutor and expert or scientific mentor.

Currently, knowledge management determines the target priorities for the development of the university with due regard to the analysis of the educational services market and the promotion of innovative technologies and products developed and offered by the higher educational institution (Ivanov, 2011; Lee, 2004).

Knowledge management processes not only contribute to the effective operation of the scientific communities and schools but also to the creation of new ones through knowledge creation and dissemination. In context of open source information availability, the key objective of higher education has changed from the reproduction of ready-made knowledge to ongoing transdisciplinary knowledge generation, the implementation of which is entrusted to the cognitive university (Gorbunova, 2008; Ignatieva & Fedotova, 2010).

## Methodology

At the theoretical stage of research, the framework for knowledge management readiness of a cognitive university teacher has been developed; such framework includes six components, i.e. value-motivational, instrumental-digital, scientific-research, evaluation-analytical, interactive-communicative, and academic-and-business components, filled with relevant indicators (Table 2).

Table 2. Framework for Cognitive University Teacher Readiness for Knowledge Management

<b>Value-Motivational Component Indicators</b>			
(1). Convinced of the simultaneous need for innovation and commitment to the mission of the organization	(2). Interested in participating in the preparation of students' project and research works, holding student scientific conferences	(3). Feel the need to conduct research to generate new knowledge	(4). Feel the need to update and replenish the knowledge regularly, for continuous professional advanced training and retraining
<b>Instrumental-Digital Component Indicators</b>			
(5). Can arrange for open (online) education, including virtual learning management systems and massive open online courses	(6). Can arrange for storage and access to knowledge by means of EIOS of the university	(7). Able to use digital tools to organize the search for new knowledge, to conduct research	(8). Able to formalize and present the knowledge obtained due to research
<b>Scientific-Research Component Indicators</b>			
(9). Able to define the goals and trajectory for knowledge acquisition	(10). Able to determine relevant issues of scientific research, analyze, systematize and generalize best practices	(11). Can draft the content and methodological support for special courses, cross-curricular disciplines and competitive educational programs, with due regard to the diversification of market needs and global trends, based on the results of the new knowledge gained in the course of research	(12). Able to work with students on research and creative work
<b>Evaluation-Analytical Component Indicators</b>			
(13). Able to self-assess knowledge comprehension	(14). Able to arrange and self-assess research findings	(15). Able to assess the suitability and reliability of the knowledge gained	(16). Able to assess the quality of research done by colleagues and students
<b>Interactive-Communicative Component Indicators</b>			

(17). Capable of trust-based cooperation with a research team, of making own results compatible with the overall performance	(18). Able to organize group work and work as a part of research team to spread and expand knowledge	(19). Can assist and advise students and colleagues in seeking, acquiring, or generating knowledge	(20). Able to develop inter- and transdisciplinary thinking in students with the help of innovative educational technologies
<b>Academic-and-Business Component Indicators</b>			
(21). Able to participate in the activities of scientific and educational centers, business incubators, technoparks, innovation and technology and engineering centers	(22). Capable of commercialization of research results (purchase, sale of knowledge, licensing and creation of spin-offs)	(23). Able to conduct commercial activities (software development, literary and artistic works, industrial designs, consulting, contract research and other knowledge products)	(24). Able to conduct non-commercial activities (holding public lectures, free consultations, publishing books for general audience)

The readiness of a teacher of a cognitive university for knowledge management is confirmed by the level of systematic knowledge in research-related issues and best practices, the ability to use digital tools to organize the search and transfer of new knowledge, to conduct research, to promote students' creative (interdisciplinary) thinking using innovative educational technologies, to assess the comprehensiveness and reliability of the knowledge gained, to commercialize research results (Kalmykova & Solovova, 2019).

Pilot study conducted at Samara National Research University named after Academician S.P. Korolev, Federal State Autonomous Educational Institution of Higher Education (Samara University), has revealed non-mature structural components of cognitive university teacher readiness for knowledge management (value-motivational, instrumental-digital, scientific-research, evaluation-analytical, interactive-communicative, and academic-and-business components), which may hinder the HEIs transition to "University 4.0" model.

The summative and formative assessments were carried out to identify the level of formation of structural components of readiness for knowledge management among teachers of leading universities in Samara; the sample was comprised of 120 teachers and scholars, including, professors, PhDs – 14.17%; associate professors, Candidates of Science – 39.17%; lecturers/senior lecturers – 25.83%; assistants – 20.83%.

As part of the study, the framework for formation of readiness for knowledge management of a cognitive university teacher was developed and verified; such framework integrates target, meaningful, procedural and effective elements that are interrelated. This framework has been implemented at the advanced training course known as "Knowledge Management in Higher Education Institutions", which lasts for 96 hours.

This course can be integrated as a module into the professional retraining program for teachers and researchers, known as "Teacher of Higher Education Institutions". Each module of the program "Knowledge Management in Higher Education Institutions" is aimed at forming value-motivational, instrumental-digital, scientific-research, evaluation-analytical, interactive-communicative, and academic-and-business components of teachers readiness for knowledge management with due regard to the content of the framework's elements.

## Results

The results of summative and formative assessment per different job groups of teachers show increase in indicators of the framework, while self-assessed indicators differ significantly per each job group (Table 3).

Table 3. Index of self-assessment of the components of cognitive university teacher readiness for knowledge management per each job group

№	Readiness Components	Teaching Staff Groups							
		Assistants		Teachers, Senior Teachers		Associate Professors		Professors	
		Summative	Formative	Summative	Formative	Summative	Formative	Summative	Formative
1	Value-Motivational	0,17	0,50	0,15	0,67	0,37	0,70	0,42	0,71
2	Instrumental-Digital	0,37	0,81	0,33	0,62	0,20	0,69	0,16	0,50
3	Scientific-Research	0,02	0,53	0,30	0,57	0,33	0,82	0,55	0,80
4	Evaluation-Analytical	0,01	0,40	0,27	0,55	0,35	0,70	0,37	0,83
5	Interactive-Communicative	0,28	0,58	0,32	0,60	0,39	0,82	0,30	0,57
6	Academic-and-business	-0,35	0,51	0,23	0,51	0,32	0,61	0,41	0,67
Mean Value		0,08	0,56	0,27	0,59	0,33	0,72	0,37	0,68

Thus, according to summative assessment, the assistants ranked the highest the instrumental-digital component (0.37 – the highest index of self-assessed indicators), which can be explained by the low average (mean) age of the group and good information literacy skills. The same component remains dominant according to the results of the formative assessment and its value increases 2.2 times. The teachers and senior teachers, according to the results of the summative assessment, ranked instrumental-digital component (0.33) the highest, however, upon completion of the advanced training course, the value-motivational component reached the maximum value (0.67), which, in our opinion, can be explained by this job group's desire for a professional development and career growth.

The fact that according to the formative assessment, the associate professors ranked the highest the scientific research and interactive-communicative components (0.82 the highest index of self-assessed indicators), shall be deemed significant, as it may have a positive impact on generation and dissemination of knowledge within university. It is worth to mention a significant increase in the evaluation-analytical (2.2) and instrumental-digital components (3.1) among the professors: the results obtained confirm the teaching staff's drive to dealing with open electronic systems containing large arrays of heterogeneous data of various quality.

The correlation and factor analysis of the results of summative and formative assessments have been conducted to confirm the effectiveness of the proposed framework for cognitive university teacher readiness formation for knowledge management and to establish interrelation between the framework's components (Korostelkin, 2001).

The correlation analysis has confirmed the integrative nature of cognitive university teacher's readiness for knowledge management and has revealed the dominant indicators in the framework. The Pearson correlation coefficient (K) was used as a measure of the magnitude of the correlation between two variables. The reliability of the correlation between the variables was established at a significance level of 0.05.

The results of the correlation analysis of data from formative assessment confirm an increase in the number of significant connections between all components of teacher's readiness for knowledge management (Table 4).

Table 4. Growth of the correlation coefficients of the components calculated based on data from summative and formative assessments

<b>Correlation Coefficients</b>	<b><math>\Delta K</math></b>
Value-Motivational / Instrumental-Digital	0,42
Value-Motivational / Scientific-Research	0,27
Value-Motivational / Evaluation-Analytical	0,47
Value-Motivational / Interactive-communicative	0,59
Value-Motivational / Academic and Business	0,32
Instrumental-Digital / Scientific-Research	0,42
Instrumental-Digital / Evaluation-Analytical	0,25
Instrumental-Digital / Interactive-communicative	0,31
Instrumental-Digital / Academic and Business	0,13
Scientific-Research / Evaluation-Analytical	0,36
Scientific-Research / Interactive-communicative	0,18
Scientific-Research / Academic and Business	0,37

Evaluation-Analytical / Interactive-communicative	0,29
Evaluation-Analytical / Academic and Business	0,22
Interactive-communicative / Academic and Business	0,17

The correlation pleiade of formative assessment results has demonstrated a significant increase in the number of correlations between the indicators of various components of the framework of cognitive university teacher readiness for knowledge management; the greatest number of correlations between the components based on the results of formative assessment received value-motivational and scientific-research components, this proves the formed need of teachers in the implementation of innovative scientific activities. However, the results of the correlation analysis identified several significantly correlated variables, which resulted in repetition and aggregation of information and highlighted the possible duplication of conceptual formulations of the same indicator.

Factor analysis made it possible to classify the indicators of framework components and differentiate them by generalizing attributes. At the top of the hierarchy, as a rule, are the general factors that unite all the productogenic causes of a particular group, previously summarized into complex, general (common) and single factors. The basic model of factor analysis is represented by the following formula:

$$Y_j = a_{1j}F_1 + a_{2j}F_2 + a_{pj}F_p + d_jV_j$$

where  $F_p$  – general factors that represents systematic variance and the correlation between them;  $a_{pj}$  – factor loading;  $V_j$  – specific factors accounting for variation not explained by general factors.

Based on the results of factor analysis of the data from summative assessment, five factors were identified that influenced a cognitive university teacher readiness for knowledge management.

The first factor singled out the following indicators with significant weights: (3) - the need to conduct research to generate new knowledge; (9) - the ability to define the goals and trajectory for knowledge acquisition; (14) - the ability to arrange and self-assess research findings; (17) - the ability for trust-based cooperation with a research team, of making own results compatible with the overall performance. The aggregate of these indicators (mean value 0.23) is expressed by the factor of need and ability to carry out research; the highest value is assigned to indicator (17), determining the importance and role of the results of their own research in the overall performance of educational institution (0.28).

The second factor includes the following indicators with significant weights (mean value -0.30): (12) - ability to carry out research and creative work with students; (16) – evaluation of the quality of research done by colleagues and students; (19) - ability to assist and consult students and colleagues in the search, development or generation of knowledge. This factor shall be interpreted as the ability to carry out creative and research activities with students.

The third factor highlighted with significant weights (mean value - 0.27) the indicators as follows: (2) - interest in participating in the preparation of students' project and research works, holding student scientific conferences; (8) - ability to formalize and present the knowledge obtained due to research; (11) - ability to draft the content and methodological support for special courses, cross-curricular disciplines and competitive educational programs, with due regard to the diversification of market needs and global trends, based on the results of the new knowledge gained in the course of research; (24) - ability to conduct non-profit activities (holding public lectures, free consultations, publishing books for general audience). The third factor shall be interpreted as the readiness of university teachers to receive and present the results of new knowledge obtained in the course of research and to use it as transdisciplinary in the educational process due to the significance of (8) and (11) indicators (0.40 and 0.27).

The results of the fourth factor were interpreted within the limits of four indicators with significant weights (mean value of the factor - 0.37): (1) - belief in the simultaneous need for innovation and commitment to the mission of the organization; (4) - the need for regular updating and replenishment of the knowledge, for continuous professional training and retraining; (6) - ability to arrange for storage and access to knowledge through electronic information and educational environment of the university; (20) ability to develop inter- and transdisciplinary thinking in students with the help of innovative educational technologies. This factor shall be interpreted as the readiness of teachers to update their own knowledge and to implement innovations in the educational organization.

The fifth factor contains indicators with significant weights (mean value - 0.28) as follows: (7) - ability to use digital tools to organize the search for new knowledge, to conduct research; (13) - ability to self-assess knowledge comprehension; (18) - ability to organize group work and work as a part of research team to spread and expand knowledge; (23) - ability to conduct commercial activities (software development, literary and artistic works, industrial designs, consulting, contract research and other knowledge products). This factor shall be interpreted as a factor of teacher readiness to commercialize the results of research activities.

All of the highlighted factors are native to the competence model of the "technocratic university" teacher, whose purpose is to overcome challenges of post-industrial society through the development of science to support production processes in the economy and business and develop knowledge-intensive technologies; this destroys the professional culture of the university teacher and does not always ensure a continuous learning process for students (Gapsalamov et al., 2018).

Factor analysis of the data from formative assessment highlighted the following five factors.

The first factor (mean value - 0.53) reveals the following indicators: (2) - participating in the preparation of students' project and research works, holding student scientific conferences; (3) - the need to conduct research to generate new knowledge; (7) - the ability to use digital tools to organize the search for new knowledge, to conduct research (0.57); (10) – ability to determine relevant issues of scientific research, analyze, systematize and generalize best practices (0.54); (17) - trust-based cooperation with a research team, of making own results compatible with the overall performance. This factor shall be interpreted as a factor of experimental readiness of a university teacher. The mean value of the factor combining the indicators of value-motivational component and of efficient research conducted at digital university has increased and their list has changed, this confirms the shift in the dominant indicators: from need to readiness. The set of indicators of this factor reveals the prerequisites for formation of teacher's readiness for knowledge management in the course of research activities with due regard to the abilities to use digital tools and generalize best practices.

The second factor identifies the following indicators with significant weights (mean value - 0.42): (13) - ability to self-assess knowledge comprehension; (15) - ability to assess the suitability and reliability of the knowledge gained; (19) - ability to assist and advise students and colleagues in the process of seeking, acquiring, or generating knowledge; (21) - ability to participate in the activities of scientific and educational centers, business incubators, technoparks, innovation and technology and engineering centers. This can be interpreted as a factor of expert readiness of a university teacher for knowledge management with due regard to a set of skills to assess knowledge comprehensiveness, the reliability of the obtained knowledge and their suitability for business technology platforms.

The third factor contains 5 indicators with significant weights (mean value 0.31, which is adequate to the mean value of data from the summative assessment), i.e.: (2) - participating in the preparation of students' project and research works, holding student scientific conferences; (5) - ability to arrange for open (online) education, including virtual learning management systems and massive open online courses;

(11) - ability to draft the content and methodological support for special courses, cross-curricular disciplines and competitive educational programs, with due regard to the diversification of market needs and global trends, based on the results of the new knowledge gained in the course of research; (12) - ability to work with students on research and creative work; (20) - ability to develop inter- and transdisciplinary thinking in students with the help of innovative educational technologies. With due regard to the mean value of the indicators (2), (5) and (20), the factor of communicative readiness of a university teacher to interact with HEIs students is of importance, in particular, for online education to ensure communication with students in the course of scientific and educational activities. Integration of the above-mentioned abilities puts the emphasis on the development of transdisciplinarity as a comprehensive tool of cognition and search for pedagogical means to implement new knowledge in interdisciplinary special courses.

The fourth factor has highlighted the following indicators with significant weights (mean value - 0.48): (5) - ability to arrange for open (online) education, including virtual learning management systems and massive open online courses; (6) - ability to arrange for storage and access to knowledge by means of electronic information and educational environment of the university; (11) - ability to draft the content and methodological support for special courses, cross-curricular disciplines and competitive educational programs, with due regard to the diversification of market needs and global trends, based on the results of the new knowledge gained in the course of research. This factor shall be interpreted as a factor of informational readiness of a university teacher for educational activities in digital space, the value of the factor is made up of the high weight of indicator (6) (0.54) due to the formation of a teacher's ability to create meta-individual trajectories of students in digital space. The growth of the indicators specified in the fourth factor proves that the instrumental and cognitive skills of knowledge management acquired during advanced training contribute to information readiness of a university teacher, i.e. the ability to adapt classical educational programs and linear method of knowledge transfer into educational design tools based on the principles of metaindividuality and transdisciplinarity both in science and in education.

The fifth factor has highlighted with significant weights (mean value - 0.44) combined indicators: (1) - belief in simultaneous need for innovation and commitment to the mission of the organization; (4) - the need for regular updating and replenishment of knowledge, continuous professional advanced training and retraining; (7) - the ability to use digital tools to organize the search for new knowledge, to conduct research; (8) - the ability to formalize and present the knowledge obtained due to research. This factor shall be interpreted as a factor of axiological readiness of a teacher for knowledge management: the justification is a significant weight of the indicator (8) - (0.51), which gives evidence of acquisition of digital skills in the course of continuous training.

The sixth factor has identified the following indicators with significant weights (mean value - 0.34): (22) - ability of commercialization of research results (purchase, sale of knowledge, licensing and creation of spin-offs); (23) - ability to conduct commercial activities (software development, literary and artistic works, industrial designs, consulting, contract research and other knowledge products). This factor shall be interpreted as a factor of innovative and business readiness of a university teacher with due regard to academic-and-business component indicators - the ability to commercialize not only the research results, but also the intellectual capital of the educational institution (Khegai et al., 2015).

## Discussion

According to the results of the summative and formative assessments though unequal number of factors (five and six) were identified, the identity of those given below was confirmed during comparative analysis:

- the need and ability to carry out their own research activities - experimental readiness;
- the ability to carry out creative and research activities with students - expert readiness;
- the readiness of the university teacher to receive, present the results of the new knowledge obtained in the course of research and to use it as a transdisciplinary one in the educational process - communicative readiness;
- the teacher's readiness to update his/her own knowledge and introduce innovations in the educational institutions - information and axiological readiness of a university teacher;
- the readiness of the teacher to commercialize the results of research activities - the innovative and entrepreneurial readiness of a university teacher (Table 5).

Table 5. Comparative analysis of factor weights based on the results of summative and formative assessments

Summative assessment			Formative assessment		
Factor	Weight	Rank	Factor	Weight	Rank
Need and ability to carry out their own research activities	0.232	5	Experimental readiness of a university teacher	0.531	1
Ability to carry out creative and research activities with students	0.304	2	Experimental readiness of a university teacher	0.418	3

Readiness of the university teacher to receive, present the results of the new knowledge obtained in the course of research and to use it as a transdisciplinary one in the educational process	0.271	4	Communicative readiness of a university teacher	0.312	4
Teacher's readiness to update his/her own knowledge and introduce innovations in the educational institutions	0.369	1	Information readiness of a teacher	0.484	2
			Axiological readiness of a teacher	0.441	2
Readiness of the teacher to commercialize the results of research activities	0.283	3	Innovative and entrepreneurial readiness of a university teacher	0.342	5
Teacher's readiness for professional activity at a technocratic (entrepreneurial) university			Cognitive university teacher readiness for knowledge management		

It should be noted that all identified factors of summative and formative assessments in their structure have duplicated indicators (the first factor - indicators (3), (17); the second factor - indicator (19); the third factor - indicators (2), (11); the fourth factor - a combination of the fourth and fifth factors - indicators (1), (4), (6); the fifth - sixth factor - indicator (23), each of the listed indicators is characterized by an increase in values. As for the factors of the formative assessment, it should be noted that an increase in the value of indicators is observed when the dominant indicator changes, and this confirms teachers commitment to scientific research activity as the key activity in university 4/0, their awareness of the need for research to be with due regard to digital tools and best practices.

## Conclusion

The study findings showed that all factors are characterized by a tendency to change the content of their basic indicators and, according to the findings of the summative and formative assessment, this results in changes in personality of a university teacher from readiness for professional activity in a technocratic (entrepreneurial) university to willingness to manage knowledge in a cognitive university.

As a phenomenon, the formed readiness for knowledge management of a cognitive university teacher can contribute not only to the development of his/her personal and professional characteristics, required for innovative professional activity in higher education, but also to the emergence of innovative educators with meta-skills.

Such notions and capabilities as taxonomy and plurality of subject-specific and expert knowledge, reflexivity, multidimensional perception, creativity, need for constant refreshment and replenishment of knowledge, flexibility of thinking processes become integrated.

A new type of cognitive university teacher ready for knowledge management is characterized by critical thinking, intellectual and research activity; dominant scientific activity that mutually complements pedagogical activity. The need for search and generation of new knowledge for the teacher is not compensatory, but determining, this contributes to improvement of knowledge acquisition and application, to transdisciplinary group research conduction, expansion of knowledge in the university; introduction of scientific achievements and innovative practices in the learning process, their commercialization.

The readiness of a cognitive university teacher for knowledge management can be interpreted as a new personality formation resulted from activated reflexive processes, self-esteem, awareness of postclassical educational paradigm change to ensure conditions for student's self-determination and individual learning trajectories, network interaction; in-depth motivation of teachers for retraining and advanced training for educational process reorganization with due regard to integration of science and education.

The results of factor analysis revealed significant indicators (in the expert assessment and self-assessment of teachers), which ensure the readiness of cognitive university teachers for knowledge management and confirms the effectiveness of the developed advanced training system. The formation of cognitive university teachers' readiness for knowledge management will allow higher education institutions to deal with the challenges associated with the transition to the University 4.0 model, which involves the transformation of knowledge in the intellectual capital of the organization as its development factor.

Based on the results of correlation and factor analysis, we conclude that the developed pedagogical means of the structural scheme of cognitive university teacher readiness for knowledge management during their advanced training have a positive impact and contribute to the development of the innovative teacher's personality traits.

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