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PSYCHOLOGICAL ASPECTS OF FORMATION OF MANAGER'S INFORMATION KNOWLEDGE IN THE SYSTEM OF HIGHER EDUCATION

The problem of determining the psychological aspects of information-management knowledge of a modern head of a structural unit of the university, corresponding to modern requirements, is in the center of attention of scientists and practitioners-managers.

The purpose of the study is to identify the main directions of information knowledge formation in managers, as well as to study the psychological mechanisms influencing the success of this process. The methodology includes the analysis of psychological theories and experimentation aimed at identifying the key factors influencing information assimilation by managers. The study involved 43 managers of structural units of the university. The structure of information competence is a construct of three components: cognitive, motivational-value and operational-activity. Managers were divided taking into account the unity of these components. into three groups: with high, medium and low level of information competence. At the first stage, structural subdivisions were included in the work of the Centre of situational management of KazNU, at the second stage an individualized training path for managers to improve the skills of solving management problems at the intersection of psychology, pedagogy and sociology was conducted, at the third stage the effectiveness of the model of development of managerial competence of managers of structural subdivisions of the university was evaluated, and the methodological support for this model was developed. As a result, a significant increase in the numerical value of all components of information and managerial competence of managers with different levels of training due to the purposeful pedagogical influence was achieved, as well as evaluations of these characteristics in the context of psychological aspects of managers' activity were given.

The authors of the article attempt to summarize the theoretical arsenal in the sphere of information expertise of managers of modern higher education institution, basic psychological and pedagogical criteria and conditions for the development of these skills. Comparing approaches in the analysis of information skills and abilities allowed to identify existing trends in the management of Kazakhstani higher education. The research conducted by the authors will contribute to the theory and practice of management psychology of the manager of a modern university, will supplement with new psychological and pedagogical knowledge the content of the system of advanced training of university teachers.

Key words: management psychology, information knowledge; information competence; information resources; psychology of modern education manager, digitalization; managerial expertise.

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Жоғары білім беру жүйесінде басшының ақпараттық білімін қалыптастырудың психологиялық аспектілері

Қазіргі заманғы талаптарға сәйкес келетін университеттің құрылымдық бөлімшесінің қазіргі басшысының ақпараттық-басқарушылық білімінің психологиялық аспектілерін анықтау мәселесі ғалымдар мен практик-менеджерлердің назарында.

Зерттеудің мақсаты – менеджерлерде ақпараттық білімді қалыптастырудың негізгі бағыттарын анықтау, сондай-ақ осы процестің сәттілігіне әсер ететін психологиялық механизмдерді зерттеу. Әдістеме басшылардың ақпаратты игеруіне әсер ететін негізгі факторларды анықтауға бағытталған психологиялық теориялар мен эксперименттерді талдауды қамтиды. Зерттеуге университет құрылымдық бөлімшесінің 43 басшысы қатысты. Ақпараттық құзыреттілік құрылымы үш компоненттен тұрады: когнитивті, мотивациялық-құндылық және операциялық-белсенділік. Менеджерлер осы компоненттердің бірлігін ескере отырып, үш топқа: ақпараттық құзыреттіліктің жоғары, орташа және төмен деңгейімен бөлінді. Бірінші

кезеңде құрылымдық бөлімшелер ҚазҰУ СБО жұмысына енгізілді, екінші кезеңде психология, педагогика және әлеуметтану тоғысында басқару мәселелерін шешу дағдыларын жақсарту бойынша басшыларға арналған оқытудың жеке траекториясы жүргізілді, үшінші кезеңде ЖОО құрылымдық бөлімшелері менеджерлерінің басқару құзыреттілігін дамыту моделінің тиімділігі бағаланды, сондай-ақ осы модель үшін әдістемелік қамтамасыз ету әзірленді. Нәтижесінде мақсатты педагогикалық әсер ету арқылы әр түрлі деңгейдегі менеджерлердің ақпараттық-басқару құзыреттілігінің барлық компоненттерінің сандық маңыздылығының едәуір артуына қол жеткізілді, сонымен қатар менеджерлер қызметінің психологиялық аспектілері аясында осы сипаттамаларға баға берілді.

Мақала авторлары қазіргі ЖОО басшыларының ақпараттық сараптамасы саласындағы теориялық арсеналды, осы дағдыларды дамытудың негізгі психологиялық-педагогикалық критерийлері мен шарттарын қорытындылауға тырысады. Ақпараттық дағдылар мен біліктілікті талдаудағы тәсілдерді салыстыру қазақстандық жоғары білім беру менеджментіндегі бар трендтерді анықтауға мүмкіндік берді. Авторлар жүргізген зерттеу заманауи университет менеджерін басқару психологиясының теориясы мен практикасына үлес қосуға мүмкіндік береді, жоғары оқу орындары оқытушыларының біліктілігін арттыру жүйесінің мазмұнын жаңа психологиялық-педагогикалық біліммен толықтырады.

Түйін сөздер: басқару психологиясы, ақпараттық білім; ақпараттық құзыреттілік; ақпараттық ресурстар; заманауи білім беру менеджерінің психологиясы, цифрландыру; басқарушылық сараптама.

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Психологические аспекты формирования информационных знаний руководителя в системе высшего образования

Проблема определения психологических аспектов информационно-управленческих знаний современного руководителя структурного подразделения университета, соответствующих современным требованиям, оказывается в центре внимания ученых и практиков-менеджеров.

Цель исследования заключается в выявлении основных направлений формирования информационных знаний у руководителей, а также в изучении психологических механизмов, влияющих на успешность этого процесса. Методология включает в себя анализ психологических теорий и эксперимента, направленные на выявление ключевых факторов, влияющих на усвоение информации руководителями. В исследовании приняли участие 43 руководителя структурных подразделения университета. Структура информационной компетентности представляет собой конструкцию из трех компонентов: когнитивной, мотивационно-ценностной и операционально-деятельностной. Менеджеры были разделены с учетом единства этих компонентов на три группы: с высоким, средним и низким уровнем информационной компетентности. На первом этапе структурные подразделения были включены в работу Центра ситуационного управления КазНУ, на втором – проводилось индивидуализированная траектория обучения для руководителей по улучшению навыков решения управленческих проблем на стыке психологии, педагогики и социологии, на третьем этапе оценивалась эффективность модели развития управленческой компетентности менеджеров структурных подразделений вуза, а также разработано методическое обеспечение для этой модели. В результате было достигнуто значительное увеличение численного значения всех компонентов информационно-управленческой компетентности менеджеров с различным уровнем подготовки за счет целенаправленного педагогического воздействия, а также даны оценки этим характеристикам в контексте психологических аспектов деятельности руководителей.

Авторами статьи предпринимается попытка обобщить теоретический арсенал в сфере информационной компетентности управленцев современного вуза, базовые психолого-педагогические критерии и условия развития данных навыков. Компарирование подходов в анализе информационных навыков и умений позволило выявить существующие тренды в менеджменте казахстанского высшего образования. Исследование, проведенное авторами, позволит внести вклад в теорию и практику психологии управления менеджера современного университета, дополнит новыми психолого-педагогическими знаниями содержание системы повышения квалификации преподавателей вузов.

Ключевые слова: психология управления, информационное знание; информационная компетентность; информационные ресурсы; психология современного менеджера образования, цифровизация; управленческая компетентность.

Introduction

The quantity and quality of information flows are growing rapidly, people need to obtain and analyze large arrays of knowledge, and their professional activities are realized in an information context. The digitalization of social life, reinforced by quarantine measures, has entailed transformations related to the development of information competence, which is considered from different perspectives in the social sciences. The simplest understanding is reduced to working with computer software. In the course of the digitalization of professional activities, managers at all levels face a host of additional challenges, the solution to which depends on their level of information competence.

The effectiveness of transformation of educational processes in higher education institutions depends to a large extent on the quality level of professional training of heads of structural units of educational organizations, who by virtue of their position should always be in the forefront of innovation, ready to effectively use information resources. Certain difficulties are generated due to their weak managerial and information competencies, which affects the entire activity of the educational institution in particular, economic and social state of society as a whole. Consequently, the study of the development of these competencies becomes an urgent regional and state task.

Active introduction of information and communication technologies, means in the sphere of education is relevant in modern society. In pedagogical science through the use of information and communication technologies achieve greater efficiency in imparting to students the skills and culture of independent work, research and development activities, thus ensuring their effectiveness and quality. For the same purpose, educational organizations strive for the formation of information and educational space, more and more successes are achieved in the application of distance learning technologies.

The above-mentioned points actualize the problem of information and communication competence development from the point of view of pedagogical science, as well as in everyday activities. M.B. Lebedeva and O.N. Shilova in their works also use the term information and communication competence, which the authors consider to be the main competence of a person in modern conditions, and it is applied in various activities using a computer, various means of telecommunication, the Internet, etc. (Lebedeva, 2004:8).

To the above it is only necessary to add that information competence is characterized by continuity, and the activity of each manager is directly related to the level of information competence.

Materials and Methods

A necessary stage of our experimental work within the framework of the research topic was to clarify the content and structure of information competence of managers of educational organization of different levels, which allowed us to organize a study of this quality (information competence) of heads of structural units of the Kazakh National University named after Al-Farabi (hereinafter – KazNU). 43 heads of structural subdivisions of the university took part in the study.

We proceeded from the fact that the structure of information competence of heads of structural subdivisions of educational organizations is a construction of three components (components): cognitive, motivational-value and operational-activity.

The cognitive component contains the results of the whole range of mutual influence of the head of the structural subdivision of the university and the received information (search, collection, processing, analysis, use, storage and transfer of information for the purpose of effective implementation of the adopted managerial decisions) and acquired knowledge, skills, abilities and experience in the field of digitalization and information and communication technologies for wide long-term use in the interests of their professional activity and personal life.

Motivational-value component characterizes the formation of various conditions, under which our head of higher school subdivision at the level of awareness perceives the requirement of circumstances and time of the need to cultivate in himself a constant desire for improvement in achieving a high level of competence in the field of information and communication technologies and information possession. This component shows the existing level of acuteness of motivation of heads of structural subdivisions of higher education institution to achieve high results in professional activity and in life in general.

Operational-activity component of the manager's information competence consists in the desire and ability to arrange personal information space, the ability to manipulate information objects in every possible way, the use of information and

communication technologies in everyday life and in professional activities, the ability to work with information, the ability to organize the creation and development of the information educational environment of the university, the automation of business processes of management in them.

Studies of the level of information competence of executives (managers) of different levels of KazNU were conducted taking into account the unity of these components. In this case, all participants of the study were divided into three groups according to their level of information competence: with high, medium and low.

Managers with a high level of information competence.

The cognitive component represents the present category of managers (6%) fully possessing the full range of knowledge about the system and the essence of information and educational sphere educational organization, browsers (4%), e-mail (4%), multimedia equipment (8%), spreadsheets (5%) word processors (6%), network technologies (7%).

Motivational and value component demonstrates the difference of this category of managers (21%) in constructive motivation to information activity, in the need for qualified updating of knowledge of information processes, in their managerial activity a strict time limit does not lead to a decrease in its effectiveness, the complexity of solved tasks does not affect their desire to model their future prospects. They creatively overcome arising difficulties, using non-standard approaches for this purpose. Initiative and activity are their main qualities developed by service activity.

The operational-activity component distinguishes this category of managers (10%) by the conscious nature of acquiring skills to work with information. Their decisions and requirements are always justified, correspond to the acquired knowledge and life experience, actions are effective, as a rule, the set tasks are fulfilled in full, the developed skills allow finding a way out of any situations, and communication with any subjects is productive.

Managers with a high level of information competence are characterized by:

- formation of personal information space (10%);
- manipulation of information objects (15%);
- use of information and communication technologies in everyday life and in professional activities (9%);
- ability to work with information (11%);

- creation of information educational environment of educational organizations (8%);

- automation of management processes in them (6%).

Managers with an average level of information competence.

The cognitive component shows that this category of managers (77%) is distinguished by superficial knowledge of the structure and content of the information and educational environment of educational organizations (73%), browsers (75%), e-mail (86%), multimedia equipment (72%), spreadsheets (68%), text editors (88%), network technologies (68%).

The motivation and value component shows representatives of this category (40%) as initiative-free managers; when planning, they set themselves mediocre tasks that they are able to fulfill, they are not always persistent in achieving the goal, especially if there is no external control. Despite the fact that they show interest in innovative processes, act in proven, standardized ways, their future, at best, only plan for the near future.

Operational-activity component reveals that managers' actions are justified, effective, but justifications may be erroneous. The skills are manifested in typical managerial situations.

Managers with an average level of information competence (70%) are characterized by:

- formation of personal information space (67 %);
- manipulation of information objects (69 %);
- use of information and communication technologies in everyday life and in professional activities (73%);
- ability to work with information (69%);
- creation of information educational environment of educational organizations (63%);
- automation of management processes in them (76%).

Managers with a low level of information competence.

The cognitive component shows that the present group of managers (17%) is characterized by fragmentary, insufficiently deep knowledge about the system and the essence of information and educational sphere educational organization, browsers (21%), e-mail (10%), multimedia equipment (20%), spreadsheets (27%), text editors (6%), network technologies (25%), lacks awareness and free operation of knowledge in standard situations.

The motivation and value component demonstrates that managers of this category (39%)

often choose extremes – either deliberately easy tasks or unrealistically difficult ones. When performing responsible tasks, they try to find reasons for refusing them if possible. When performing rather difficult tasks under the conditions of limited time, the efficiency of activity deteriorates. They do not show professional interest in information processes.

The operational-activity component characterizes the representatives of this group (20%) as managers who possess separate skills and have little (or no) experience. The actions of managers with a minimal level of information competence are not always realized, logically justified, partially effective, goals are achieved occasionally, skills are

manifested in typical managerial situations. A large share of external assistance, they act with a hint.

Managers of this group are characterized by:

- formation of personal information space (23%);
- manipulation of information objects (16%);
- use of information and communication technologies in everyday life and in professional activities (18%);
- ability to work with information (20%);
- creation of information educational environment of educational organizations (29%);
- automation of management processes in them (18%) is not carried out independently.

Table 1 – Knowledge, skills, and abilities of managers with different levels of information competence, as determined during the ascertaining stage of the study

Criteria	Indicators		
	high	medium	low
1	2	3	4
<i>Cognitive component</i>			
Knowledge of browsers	4%	75%	21%
Knowledge of e-mail	4%	86%	10%
Knowledge of multimedia equipment	8%	72%	20%
Knowledge of spreadsheets	5%	68%	27%
Knowledge of text editors	6%	88%	6%
Knowledge of networking technologies	7%	68%	25%
<i>Motivational and value component</i>			
High-level mastery of ICT	21%	40%	39%
<i>Operational-activity component</i>			
Formation of personal information space	10%	67%	23%
Manipulation of information objects	15%	69%	16%
Use of information and communication technologies in everyday life and professional activities	9%	73%	18%
Ability to work with information	11%	69%	20%
Creation of information educational environment of educational organizations	8%	63%	29%
Automation of management processes in them	6%	76%	18%

All this clearly shows (tab. 1) that as a result of the experimental work carried out within the framework of the study of information competence of university management staff, the prevalence of low and average levels of their information competence formation was revealed. That, in turn, confirmed our conclusion that in order to change the situation in the university in a positive direction requires a

calibrated pedagogical impact according to a clearly planned plan in advance, taking into account an individual approach to each manager of the educational organization involved in the study.

Within the framework of experimental work it was established that the inclusion of structural units of the university in the work of the Center of situational management of KazNU in the course of

complex use of information technological resources in the process of information and management activity of managers, influenced for the better both on the improvement of their information literacy and on the increase of conscious motivation to innovative activity in the information environment of the university.

The center is equipped with modern means of communication, interactive collection, storage, analysis and transfer of relevant information for control and monitoring of the current activities of the university, prompt adoption of correct management decisions.

When organizing the second (formative) stage of experimental work, we applied methodological programs for managers of various departments aimed at improving the level of managerial culture. These programs were developed on the basis of initial diagnostics. Continuing the research, the authors developed an individualized trajectory of training and support to improve the professional potential of managers, organized in a modular way. Educational

modules were created to meet specialized needs, allowing managers to master methods of solving managerial problems at the intersection of psychology, pedagogy, and sociology, as well as to engage in scientific research.

During the implementation of this model, we developed a curriculum for the discipline «Management in Education», which included the following modules:

- Modern trends and prospects of higher education development;
- Modern pedagogical technologies;
- Actions of the head of the unit in higher education.

This work was not only a development process, but also the result of improving managerial skills (Table 2). For example, the professional development program for managers on professional and managerial activities was conducted jointly with the Institute of Professional Development and Additional Education of the Al-Farabi Kazakh National University. The results shown in Figure 1 were achieved.

Table 2 – Acquired knowledge, skills and abilities of managers with different levels of information competence after the second phase of the study

Criteria	Indicators		
	high	medium	low
1	2	3	4
<i>Cognitive component</i>			
Knowledge of browsers	70%	24%	6%
Knowledge of e-mail	85%	10%	5%
Knowledge of multimedia equipment	72%	21%	7%
Knowledge of spreadsheets	68%	27%	5%
Knowledge of text editors	86%	10%	4%
Knowledge of networking technologies	69%	25%	6%
<i>Motivational and value component</i>			
High-level mastery of ICT	62%	20%	8%
<i>Operational-activity component</i>			
Formation of personal information space	74%	24%	2%
Manipulation of information objects	82%	20%	8%
Use of information and communication technologies in everyday life and professional activities	75%	19%	6%
Ability to work with information	74%	22%	4%
Creation of information educational environment of educational organizations	72%	20%	8%
Automation of management processes in them	70%	26%	4%

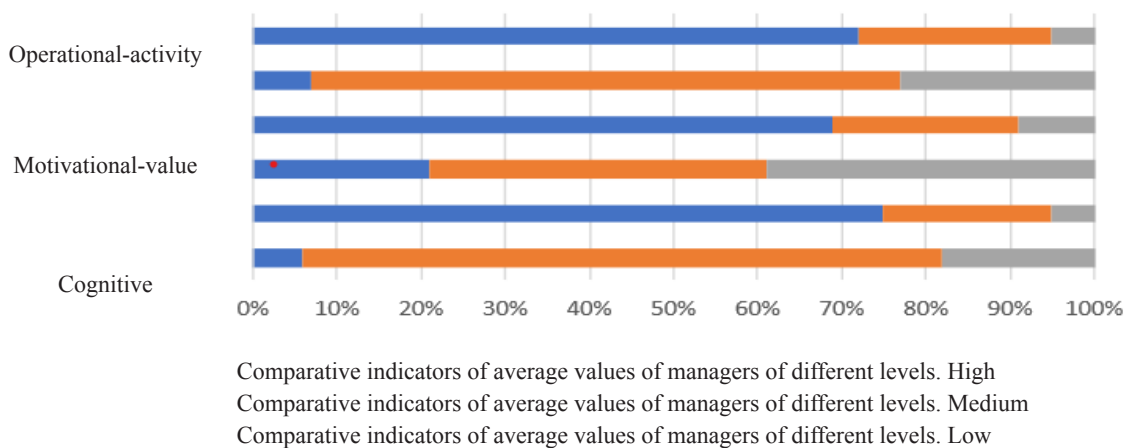


Figure 1 – Comparative indicators of average values of components of information competence of managers of different levels at different stages of the study

The third stage included systematization and analysis of the results of experimental work. The main goal was to generalize the results of the research, to assess the effectiveness of the model of development of managerial competence of managers of structural units of the university, as well as to develop methodological support for this model.

Literature review

The analysis of the scientific literature studied by us allowed us to consider information competence of specialists based on two scientific approaches:

- 1) information competence as a part of general culture;
- 2) information competence as a component of professional competence of a specialist.

The second approach is the most suitable for us, which allows us to reveal the topic of our research in a more substantive and professional way, thanks to which we can study the following issues and problems in a deeper and more meaningful way:

- the state of management realized as information relations;
- planning, organization and implementation of managerial decision as the main instrument of controlling influence applied by the manager;
- business processes of management, which are the search, accumulation, analysis of information and its submission in the required form and on appropriate media to the decision-making centers (Akimov, 2015: 8).

Information training and literacy in information and communication technologies provide a technological component. Thanks to it, the

manager is able to independently find, recognize and apply information with the help of common and communication technologies. In doing so, he/she can easily operate with signs, models, data and information.

Taking into account that a modern manager is obliged to improve his/her theoretical level and professional competence throughout his/her activity, it should be agreed that only an information literate person is able to master the necessary training load. And this statement is true for all academic disciplines, educational institutions and levels of education.

Information literacy enables managers to more fully master the subject of study, expand the boundaries of cognition, deepen and improve their intellectual and professional level.

These knowledge and skills enable the manager (Figure 2) to make extensive use of modern computers, software applications, databases and other technologies to improve and achieve more meaningful results in personal, work and academic life.

Although information technology skills and information literacy have significant similarities, the latter is a distinct, broader area of competence. Information technology skills increasingly overlap with and reinforce information literacy.

Fluency in information and communication technologies places higher demands on the intellectual capacity of users than on the simple memorization of hardware and software, which is the basis of computer literacy. What matters is the level of proficiency in the technology itself. The first priority here is the qualification and competence of users in the use of a particular technology. At the same

time, according to the achieved level of information literacy, the appropriate number of skills in information management and work with information is also available. The basis is a natural, effortless mastery of information technologies and the use of proven and tested research methods that have passed the

critical judgment of users. We agree wholeheartedly that education managers should be given every opportunity to learn, to use advanced information technology throughout their work. But this, in turn, is only possible if they have an appropriate level of information competence.

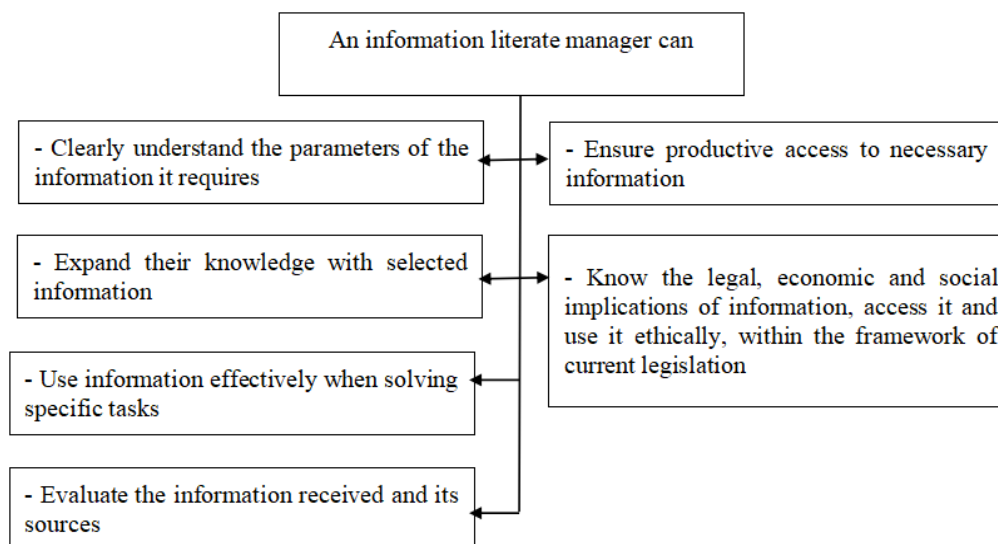


Figure 2 – Information competencies of a modern manager

There is no question about the requirement of compulsory functioning of advanced training courses for managers of various levels, their paramount importance in the formation of managers' analytical skills of reflection and deep analysis, which ensures their continuous steady rise up the job ladder throughout their career. It is also where an understanding of how to learn is formed.

The primary vehicle for managers' lifelong continuing education is information literacy, which promotes learning in every way possible. Solid skills in the manipulation of information ensure that managers receive the broadest possible opportunities to comprehend knowledge and competencies, to gain experience of individual creative search, to consciously form in themselves greater responsibility in all areas of life and activity. Today, many professional development institutes recognize information literacy for managers as an important achievement, recognizing its significant role in enhancing the capacity of managers to apply information to make managerial decisions.

The analysis of research literature illustratively shows the presence of multiple approaches in competence analysis.

For effective solution of long-term perspective and daily arising managerial tasks by the heads of structural subdivisions of the university it is necessary to fully use various existing approaches due to the fact that each of them offers exclusive, different views, system and ways of organizing the educational process.

First of all, the competence approach should be emphasized. The detailed study of all its features and scientific experiments in the practical use of available knowledge are the eternal engine of pedagogical science development.

The next system approach, which allowed us to systematize a lot of existing approaches in the scientific and pedagogical space. Based on its principles, we come to the conclusion that information competence is the foundation, as well as a necessary element of professional competence of managers of educational organizations.

A.G. Filina believes that information competence is an integral part of general professional training and depends on the nature of the tasks to be solved. The essence of information competence is the ability to search, obtain, analyze and apply information. The quality of information competence

is determined by: the relevance of information, the ability to search, evaluate information, analyze and synthesize it, ethically and effectively use information. In psychological science, information competence is an acquired quality of an individual, which is fully applied to manipulate all kinds of information in his professional activity. It is formed of the following components: value-motivational, professional-activity and reflexive-communicative (Filina, 2019). The first component involves recognizing the value of the information required for successful leadership as well as the need to regularly improve one's information competence; the second assesses and considers the circumstances and environment for the process of building information competence; and the third component involves the measurability of information competence.

According to O.G. Smolyaninova: information competence is «universal ways of searching, obtaining, processing, presenting and transmitting information, generalizing, systematizing and transforming information into knowledge» (Smolyaninova, 2002: 504).

L.G. Osipova understands information competence as the ability to navigate in a vast, rapidly updating and growing information field, to quickly find the necessary information and integrate it into their system of activities, to apply it to solve practical and research problems (Osipova, 2003:18).

A.L. Semenov interprets information competence as a new literacy, which includes the skills of active independent processing of information by a person, making fundamentally new decisions in unforeseen situations using technological means (Semenov, 2000:12).

A.V. Cherepanov notes that today not just the issues of competence development are actualized, but the formation of new competences, since the presence of multifunctional relationships, different methods of decision-making, transformation of organizational structures require new qualities from workers at all levels and spheres.

The author considers competence in the format of partnership «business – higher school», where the key methods of competence development are training technologies, evaluation of their effectiveness by areas of responsibility and levels of mastery: manager's reaction, competencies, behavior, influence, as well as evaluation of return on investment in the development of key competencies of educational managers. The issue of strategic management as a response to external challenges is becoming more and more acute in higher education organiza-

tions. A.V. Cherepanov presents the core competencies of managers of educational organizations as a set of their individual abilities required to perform their functions, ensuring, within the framework of an actively evolving range of responsibilities, the successful operation of the object of management through the prism of its tactical, operational and strategic objectives.

A.V. Cherepanov proposes a model in which the competence of managers contains corporate functional competencies, which are a set of competencies in related fields, project management competencies, and social competencies. The training technologies developed and tested by the author contribute to the reformatting of manager's personal qualities into key competencies of educational organization using the principles of project management and implementation of strategic objectives of the organization (Cherepanov, 2011: 228).

U. Kolesnikov presents competence as a set of personal qualities successfully realized in professional activity. Information competence is the knowledge of modern information technologies and the ability to use them in the organization of the educational process. Information competence includes the following skills: organization of personal information space and mastery of basic services and techniques of work in the Internet, ability to work with documents through office technologies. Effective use of multimedia technology raises the level of professionalism of the manager, forming competencies of different levels (Kolesnikov, 2017: 96).

In the domestic literature, the organizational and methodological complex of the quality management system of higher education institution in accordance with the requirements of ISO standards is described in detail in the collective monograph «Quality Management in Higher Education Institution» (Mutanov et al., 2011). Competency-based approaches in the educational process are considered in the works of R. Sh. Abitaeva (Abitaeva, 2010:19), D.Sh. Zhumagalieva (Zhumagalieva, 2014:78), L.Sh. Shokanova (Shokanova, 2010: 28-33), V.G. Kozlov (Kozlov 2011:194), T.S. Vinogradova (Vinogradova, 2012: 92-98), G.Yu. Makarova (Makarova, 2011:211).

New approaches to the formation and development of key competencies are required, taking into account new challenges and the experience of foreign research. The quarantine period has clearly demonstrated that the management of the educational process acutely raised the issue of formation of necessary skills and revealed the deficit of developments in this area.

Results and Discussion

As a result of the targeted impact on the process of developing managers' information competence during the formative stage of the study, significant results were achieved in improving the level of cognitive, motivational-value and operational-

activity aspects of their professional activity in higher education.

Table 3 clearly shows a significant increase in the numerical value of all components of information and managerial competence of managers with different levels of training due to the purposeful pedagogical impact.

Table 3 – Comparative indicators of average values of components of information competence of managers of different levels at different stages of the study

Components of information and management competence	Stages of the study	Comparative indicators of average values of managers of different levels		
		high	medium	low
Cognitive	Conclusive	6	76	18
	Formative	75	20	5
Motivational-value	Conclusive	21	40	39
	Formative	62	20	8
Operational-activity	Conclusive	7	70	23
	Formative	72	23	5

This study shows the importance of a systematic approach to the development of managers' information competence. A differentiated approach to training focused on achieving a high level of competence can significantly improve the effectiveness of information management in educational organizations. Managers with different levels of competence require individualized training strategies and support to enhance their professional potential.

Overall, the results of the study demonstrate the importance of information competence for effective management of key processes in higher education. Managers with high levels of information competence have a wide range of knowledge and successfully apply it in a variety of situations, whereas managers with lower levels of competence may face limitations in understanding and utilizing information resources. These findings can be used to develop training and support programs for managers to improve their information competence in higher education.

In addition, the given results of the study allow us to highlight not only the level of information competence of managers, but also to evaluate these characteristics in the context of psychological aspects of their activity in the sphere of higher education. Let us consider the obtained results from the psychological point of view.

1. Managers with a high level of information competence are characterized by:

- motivation and initiative: the distinctive feature of this group is constructive motivation, activity, initiative, and creative overcoming of difficulties. These managers are not afraid of difficult tasks and strive for innovative approaches;

- Stress tolerance: a tight time limit does not reduce their performance, and the complexity of tasks does not affect their desire to achieve the goal. This indicates a high level of stress tolerance and a willingness to work effectively in a dynamic environment.

2. Managers with an average level of information competence are characterized by:

- predominance of lack of initiative and standard approaches: the group expresses lack of initiative, preference for mediocre tasks and acting in standard ways. This may be due to a lack of motivation for change and a tendency to avoid complexity;

- errors in justifications: the operational-activity component indicates that their solutions may be productive, but their justifications are flawed.

The foregoing supports the proposition that the findings were premature and unsubstantiated.

3. Managers with a low level of information competence are characterized by:

- unwillingness to bear responsibility for their actions, tendency to choose extremes when solving managerial tasks;

- due to fragmentary and insufficiently deep knowledge, there is a low awareness of the consequences of their actions, inability to justify them logically, and expectation of outside help.

Managers' ability to effectively manage information and make informed decisions is actively influenced by psychological aspects of their information-management competencies.

The results of the conducted research and their psychological analysis confirm the importance of managers' strong motivation, acquired stress resistance, aspiration to innovations implementation, as well as readiness to fully bear responsibility for the made managerial decisions for sustainable activity in the sphere of university education management. Managers with a high level of information competence have psychological qualities that contribute to successful adaptation and acceptance of challenges in a dynamic information environment, while managers with a lower level of competence may need support and development of appropriate psychological skills.

Conclusion

Research on the digital competencies of managers in the educational sector has significant practical value, influencing various aspects of professional activity and supporting the development of educational organizations. Below are a few practical aspects in which the results of the study may be useful.

1. Development of educational programs.

The research provides information for modernization of educational programs aimed at training managers in the educational sphere, including individualized courses for different levels of information competence.

2. Optimization of personnel training.

The results of the study can be used to create training programs aimed at developing missing competencies, which in turn will improve staff performance.

3. Career Development Planning.

Managers can use the results of the research to determine their current level of information competence and develop individualized career development plans.

4. Business process optimization.

Organizations can use this research to optimize business processes by implementing innovative information technology and improving information management.

5. Motivation and human resource management.

The results of the research can serve as a basis for the development of motivation systems that stimulate personnel to actively develop information competencies.

6. Creating educational environments.

Educational organizations can use the data to create more effective information and educational environments, taking into account the specific competencies of different levels of managers.

7. Preparing for the digital future.

The results of the research help organizations adapt to the rapidly changing digital environment, providing managers with the necessary competencies for successful leadership in the future.

8. Creating a system of professional competence assessment.

Organizations can practically apply the results of this study to ensure a fair assessment of the professional level of their managers and their effective development.

The applied nature of this study determines the data and recommendations developed during the conducted experimental part for use by educational institutions in order to improve the professional competence of their staff and to improve the quality of information management.

Summarizing the thoughts about the information competence of managers in the system of higher education taking into account psychological aspects it is necessary to emphasize some determining factors.

1. Stimulation of motivation.

Proceeding from the discovered qualitative differences of motivational and value components of the considered groups of managers, it is required to make a special emphasis on the preparation of plans and concepts, in which the formation of motivation and initiative in the field of information activity will be at the basis of all goals.

2. Mental attunement to innovations.

It is firmly established that managers with a high level of information competence cope well with emerging barriers and respond positively to change. It is worth noting the high importance of psychological readiness for innovation. Various stress management trainings, designing flexibly customizable techniques, and creating strong psychological capabilities are important here.

3. Education and facilitation.

For managers with medium and low levels of information competence, psychological support and training are at the top of the list. Here it is necessary to realize that it is of paramount importance to develop personalized training plans and programs

that take into account the psychological differences and needs of each category, with the aim of building stress resistance and self-sufficiency in their representatives.

4. Development of information culture.

Undoubtedly, availability of the formed information culture in educational organizations is of high importance. Special programs and activities

can help managers to create a personal information space, manipulate information objects and automate management processes.

As a result, we can reasonably emphasize not only the importance of developing information competence, but also offer specific psychologically oriented strategies and recommendations for different groups of managers in higher education.

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