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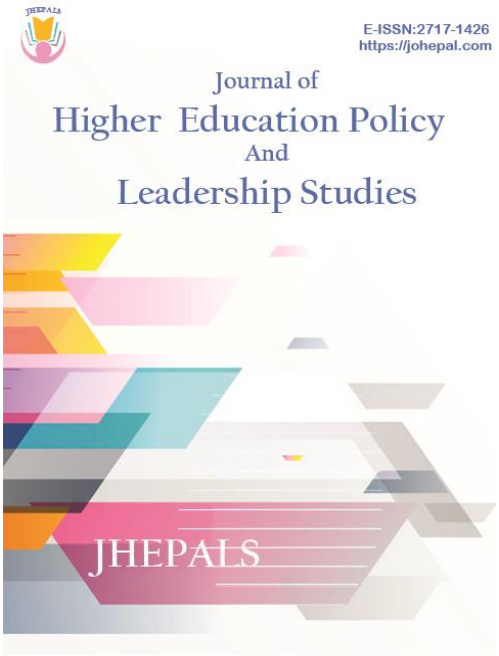

Professional Training of Managers in the Information and Educational Environment of Universities

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Abstract

The study aims to develop and experimentally test the professional training system for future managers in the information and educational environment. The study used the following methods: the methods of scenario; "focus groups"; theoretical formalizations of the educational process of training future managers; empirical methods for monitoring the description of pedagogical methodology and experiment; the methods of statistical and mathematical processing of the results of pedagogical experiment, quantitative and qualitative analysis of the obtained experimental data. A total of 698 students from six Ukrainian universities took part in the experimental study. According to the study, the formative and monitoring stage demonstrate positive changes in the development levels of knowledge, skills, abilities, and competencies of the experimental group students, which were the same as those of the control group at the beginning of the experiment. The control and system stages of the pedagogical experiment confirmed the reliability of the developed system of professional training of future managers verified by the Pearson criterion. The study's results made it possible to substantiate proposals for the prospects of professional training of future managers in higher education institutions.

Keywords: Professional Competence; Information and Communication Technologies; Educational and Methodical Support; Pedagogical System; Pearson Criterion

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Introduction

Ukraine's European integration movement requires high-quality and advanced training of competent professionals in the international labor market. In particular, the current state of socio-economic development of society, the new requirements of employers to the level of professionalism of future managers increase the importance of hospitality, which is a component of the content of their training and related to the organization of leisure. Bukhari et al. (2021) state the importance of solving the problem of creating an information-educational environment in the process of digitalization of education and, directly, the system of professional training of future managers in higher education institutions (HEI), which is now due to the need for its holistic renewal and alignment with the general transformational changes in society.

The scientifically substantiated definition of digitalization of the educational environment of the system of future managers and the specification of ways, which can be used for effective implementation of continuously updated digital technologies also become relevant. The purpose of the study is to develop and experimentally test the professional training system for future managers in the information and educational environment. According to the purpose, the following tasks of the study are formulated:

1. To conduct a theoretical analysis of the scientific development of the outlined problem, define the basic concepts and identify the study areas.
2. To generalize the practical experience of professional training of future managers in higher education institutions.
3. To develop and theoretically substantiate the professional training system for future managers in the information and educational environment and organizational and methodological support of its implementation.
4. To experimentally test the effectiveness of the developed professional training system for future managers in the information and educational environment.

In the conditions of intensive society digitalization, Haqaf and Koyuncu (2018) emphasize that a problem arises, which is that the current approaches to the educational professional training system for future managers are mainly focused on the development of cultural knowledge of managers. Thus, Gilar-Corbi et al. (2019) state that the knowledge of the basic provisions of the theory and history of culture or culturology is only general understanding, but for a well-trained management specialist such general understanding is not enough. Leisure and animation areas of the industry, which future managers must support, are left out of consideration. According to Quapp and Holschemacher (2020), the educational environment for training future managers in higher education institutions is currently in its infancy. It involves solving many complex problems, given the multidisciplinary nature and its multidisciplinary structure of professional training. Liao and Ma (2019) stress that the educational process in the conditions of digitalization of society and education, respectively, should be flexible, mobile, dynamic and open, be characterized by a quality to take into account any changes and be aimed at providing this area with highly qualified professionals.

One of the current problems of higher management education is determining the priority areas of development. Ebrahiminejad et al. (2017) argue that culture as a heritage

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and a way of life is a source of leisure activity. In turn, the hospitality industry becomes a mechanism of the social dynamics of culture. At the same time, a culture of leisure is formed, which plays a vital role in humanitarian education, aesthetics, economics, and cultural exchange. Sirris (2019) underlines that cultural exchange can strengthen citizens' feelings of patriotism and national pride, strengthen mutual understanding of peoples and friendly ties, promote the preservation and development of national culture and maintain social prosperity and stability. Culture, as a necessary condition for the existence of society, is constantly reproduced by society. Södersved Källestedt et. al (2020) study the reproduction of culture, elementary or extended. All these and some other processes and forms form what is called the cultural sphere of society.

The process of formation and development of professional and managerial orientation of managers is carried out continuously throughout the life cycle of professional activity. Schüller and Bergami (2020) emphasize that professional orientation, regardless of the nature of the profession, has no final limits in its completeness. Liang et al. (2018) conducted a more detailed study. The specificity of working conditions and the sphere of activity of managers form a particular psychological structure of the personality of the representatives of this profession. They develop their views and ideas mainly through experience, perception, expectations, forecasts, and prospects. Chiru and Pârvu (2016) point out that the professional and practical orientation of the future profession connects a person with the job and the whole world. In this process, senses and meanings, specific situations and experiences play an essential role. Nielsen et al. (2018) describe professional orientation as a subjective state of personality that can be changed by the specialist's emerging needs, tasks, goals, and values under the influence of professional activity.

According to Carillo et al. (2019), the starting point in the manager's activities is his professional and managerial skills and abilities, thanks to which the specialist can realize himself as a person, revealing his professional qualities as proof of his professional capacity. Li et al. (2021) indicate that the development of market relations in socio-cultural activities has dramatically changed the mission, goals and objectives of its functioning, updated methods and principles of management. Dynamic labor division processes, which are manifested in the renewal of social functions, roles and status of modern professionals, deepened their specialization in various areas: managerial, intellectual, artistic, cultural and creative, leisure, communication, etc. According to Holz (2019), the current tendency to deepen the specifics of various activities has become an essential factor in overall cultural progress. Ghosi et al. (2020) argue that cultural activities in labor division, education, leisure culture, social pedagogy, etc., are of significant importance. In other words, these are the areas of activity most closely related to man, his spiritual, moral, artistic development, social health and protection.

In the analysis of scientific, scientific-methodical, and educational-methodical literature on psychology and professional pedagogy, no scientific works were particularly devoted to studying the professional training of future managers in the information-educational environment. A generalized analysis of studies and priority measures aimed at implementing public policy to ensure the improvement of the educational process, accessibility and effectiveness of management education in the cultural environment, indicates the presence of significant contradictions that determine the main problem.

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Research Design: Materials and Methods

The concept of the study involves compliance with the functions, compliance and application of methodological approaches, synchronization of interaction with employers in the organization of training of future managers in the information and educational environment for the formation of socio-information competence of student-centered training and further tolerant lability of trajectories of professional improvement and competitiveness in the cultural sphere in accordance with such a sequence: educational, research, methodical, communicative, organizational, cultural, legal, developmental, ideological, managerial, individual; systemic, acmeological, competence, personal, activity, culturological, prognostic, information-corrective, transformational, synergetic; popularizers and broadcasters of information and media networks, hospitable estates and restaurants, recreational and leisure services, educational, educational-scientific, outreach institutions by functional orientation, information-telecommunication institutions, animation-rehabilitation institutions, public and administrative-territorial bodies.

The general hypothesis of the study is that the training of future managers of cultural activities becomes effective if it is carried out based on sound theoretical and methodological principles that reveal the structure of information competence of future managers, formed in the information and educational environment, the concept, the system of professional training of such specialists and appropriate organizational and methodological support.

To solve the tasks of the study, to achieve its purpose the following methods were used: the method of analysis — functional, structural-logical, comparative, multi-criteria dimension of comparison and multiple alternatives for management decisions; method of scenario — approvals and preparation of representations of problem algorithms of situations at the stage of forecasting the development of the field of employment of future managers; method of "focus groups" — the method of questionnaires and interviews, qualitative knowledge, critical attitude, structural synectics of experimental research, integration of "objective tree" and field of activity of the object of management — general methodological conceptualization of goals of training programs and algorithmization of employment projects in the practice of modern management in the cultural sphere; theoretical formalizations of the educational process of training of future managers and hypothetical axioms, simulation modeling of the system of professional training of future managers in the information-educational environment; empirical methods — monitoring the description of pedagogical methods and experiment, collective and individual expert assessments, disciplinary and interdisciplinary, general-fundamental special-scientific; statistical methods — mathematical processing of the results of the pedagogical experiment, quantitative and qualitative analysis of the obtained experimental data.

Despite the fact that recently the authority of pedagogical experiment (PE) as an effective criterion of truth has decreased somewhat, it remains the most developed method of scientific cognition. The most prominent trends in its development are as follows.

López-Fernández et al. (2018) point out that the branches of science are developing intensively, where the experimental method is beginning to be widely used. According to Fuenzalida et al. (2020) modular, mathematical, and mental types of modeling are evolving rapidly, which is especially effective in the studies with inaccessible and unique objects.

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Nadiv et. al (2017) emphasize that the study method includes: the creating the methodological section of the experiment program (developing the experiment methodology; experiment planning, preliminary assessment of the experiment, preparation of conditions and objects of the experiment); technologies of experiment program development (formulation of a cognitive problem, creating the methodological section of the experiment program, formulation of experiment goals and tasks, making hypothesis of the experiment, empirical interpretation of operational concepts, building a general model of the experiment), developing the experiment methodology (selection or development of the methodical plan of the experiment, selection or development of the methods of object transformation, determination of the experiment time, development of the means and methods of measurement and control, development of the methods of analysis of results, the methods and means of measurement, the means and forms of presenting initial information, the methods of calculations, the methods of empirical analysis, measurement errors, the methods of experiment control , the methods of theoretical analysis, preparation of conditions and objects of experiment.

Modern experiments are increasingly provided with advanced methods of observation and measurement by digital means. Seltzer (2019) thinks that the main purpose of research-experimental work was to experimentally test the structural and organizational system of professional training of future managers in the information-educational environment. The task of pedagogical diagnostics is the internal and external correction in case of incorrect assessment of results or identification of shortcomings in the process of professional training of future managers.

Lawrence et al. (2021) state that the multi-vector nature of the subject of research of the system of professional training of future managers in the information environment led to conducting a comprehensive pedagogical experiment. A set of methods of experimental work was used to implement the experimental study of the system of professional training of future managers.

A total of 698 students participated in the experimental study, of which 348 people were included in the control group (CG) and 350 in the experimental group (EG). Drahomanov National Pedagogical University, Khmelnytsky National University, Rivne State University of Humanities, Kharkiv State Academy of Culture, Kyiv National University of Culture and Arts, and SHEI «Vasyl Stefanyk Precarpathian National University» were chosen as the experimental base of the study. The final stage of the experiment is the interpretation of information data of the established results of the previous stage to scientifically proven facts. The result of the experiment will be an assessment of the formation of the level of professional socio-informational competence of future managers in the information and educational environment of HEI. The study program was performed in four stages, each of which combined a set of operations:

1. The motivational and stimulating diagnostic stage consists of the study of the desire of future managers to work in the cultural sphere, recognize the usefulness of their professional activities, the importance of organization and management of enterprise processes, interest in management in the cultural sphere, commitment to communication, self-expression and self-affirmation, to enhancement of individual status, prestige, the desire for creative work.

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2. The summative stage combines the development of methodological and methodical sections of the experiment program, the formation of necessary conditions for its carrying out. At this stage, one makes a cut according to criteria at the levels of indicators of formation of knowledge, abilities, skills and competences of bachelors and masters in experimental and control groups.
3. Control and system stage. It is the stage, the main content of which is the subject-practical activity of the experimenter: exam, observation, control of variables, experiment management, etc.
4. The formative and monitoring stage is devoted to transforming an experimental fact into a fact of science.

Therefore, in this paper attention is focused on psychological and pedagogical factors of studies: 1) presence of a set for mastering the professional activities of the manager; 2) formation of professional and value orientations in the cultural sphere; 3) formation of a system of professional motives and interests (professional motivation); 4) presence of cognitive needs and interest in professional knowledge.

The methodology is adapted to study the motives of future managers, the choice and desire to be professionally implemented in the cultural sphere and is reflected in the questionnaire. Therefore, out of 12 questions of the questionnaire, we modified and singled out 50% of motives by professional orientation: the presence of a set for mastering the professional activities of the manager of cultural activities; formation of professional and value orientations in professional activity; formation of a system of professional motives and interests; the presence of cognitive needs and interest in professional knowledge in the cultural sphere; the vision of the most important significance in assessing the results of student motives and the inclusion of the most interested in EG.

Results

The concept of multiculturalism is a system that must take into account various social factors in professional training. Grøn et. al. (2020) think that multicultural training creates a sense of freedom among students, which allows them to improve their knowledge and professional skills to participate in a free democratic society, easily interact with a variety of social groups.

Multicultural education requires teachers to train future professionals in the context of completely new cultural relationships and factors. According to Tironi et. al. (2017), the educational system of most countries has a cultural model, which aim is not only to consume and transmit knowledge, but also generate human ability to restore knowledge in various forms of cultural practice. Given the positive experience of training of future managers of cultural sphere, one can confidently state that this experience will make it possible to improve the program of professional training of cultural professionals in Ukraine, will help formulate the requirements of society at the present stage, to identify objective opportunities and conditions for improving professional training of professionals in the sphere of leisure.

In opinion of de Moura et. al (2019), the professional training of a manager of socio-cultural activities is currently a process and result of training higher education students of

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specialized bachelor's, master's and postgraduate programs in knowledge, skills and attitudes (relationships), or, which is the same, the organizational and managerial competencies.

Their content is regulated by educational standards in the field of training of managers and industry professional standards. These requirements guarantee the effective execution of actions offered by the profession by young employees in this area, at a level not lower than the minimum requirements for professionalism and quality of work performed by a modern manager, taking into account foreign experience.

The outlined theoretical and practical analysis of studies allowed to define step-by-step carrying out of pedagogical experiment. Its results provide an evidence base for the objectivity of testing the correctness of the hypothesis, which is the effectiveness of training of future managers through the introduction of a scientifically sound system of their training in the information and educational environment, in accordance with developed and implemented conceptual provisions, scientific and methodological, organizational-pedagogical, information-analytical and logistical support for cognitive activity in HEI.

The pedagogical experiment was used to develop corrections, implementation and appropriate improvement of theoretical and methodological ideas on the study problem. The pedagogical experiment helped to solve the main task of the study, the essence of which is the effectiveness of the formation of competencies.

The pedagogical experiment tested the assumption that the effectiveness of training of future managers will increase due to the introduction of a scientifically sound system of training of future managers in the information and educational environment, in accordance with the developed and implemented conceptual provisions and scientific-methodical, organizational-pedagogical, information-analytical and material-technical support for cognitive activity in HEI.

Pedagogical experiment (PE), in particular the formation of information competence in the training of future managers, is used mainly to test the effectiveness of new forms, methods and models of digitalization of the educational process. PE is a method of obtaining information about quantitative and qualitative changes in the performance of the object as a result of the action of certain factors, which are managed and controlled.

It is based on the subject-practical transformation of objects according to the hypothesis in the conditions of its micro-scale existence. PE allows to solve these problems: firstly, to study the phenomena in their pure form, when it is possible to artificially eliminate various kinds of side and background factors; secondly, to study the properties of the object in artificially created extreme conditions; thirdly, to repeatedly reproduce the course of the process in strictly fixed and controlled conditions; fourthly, to systematically measure and vary the different conditions to obtain the desired result.

It is important that PE allows you to identify new properties of the object, test hypotheses, predict the future of the object, to demonstrate the phenomenon for educational purposes. As a method of scientific cognition, PE investigates subject-practical transformations of the object and is used to test hypotheses through researcher (scientist) applying operations to change the conditions of the experiment to monitor its (object) modernization and acquisition of a new state; enables the determination of causal interaction in order to establish the factors of influence and systematic analysis of the process or phenomenon; is mainly used to test the effectiveness of new forms, methods and

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models of organization, quality management of educational systems; is a method of obtaining, accumulating, generalizing and systematizing the information base of parametric evaluation by indicators, levels and criteria; investigates quantitative and qualitative changes in the state, efficiency, development of the object as a result of the influence of factors being modeled — programmed, simulated, managed and controlled in the developed models to predict the development of the educational system.

The purpose of the experimental test consisted in the identification of the effectiveness of the proposed model of the system of training of future managers. The model has the following blocks: target, conceptual, semantic, procedural and effective. According to the purpose of the experiment, the following tasks were formulated:

- Formation of educational and professional orientation and leading motives of professional activity of a future manager;
- Provision of the content component of the educational process to achieve the quality of formation of professional information competence of a future manager;
- Digitalization of the educational environment of professional training of future managers;
- Determination of criteria of efficiency of the developed model of the system of professional training of future managers in the conditions of information and educational environment;
- Determining the trajectory of the experimental site of higher education institutions and clarifying the initial state of the subjects of the experiment;
- Checking the effectiveness of training according to the proposed model in the process of studying the cycle of variable disciplines of the student's choice by comparing the final indicators of the selected criteria with the initial ones;
- Identification of factors influencing the effectiveness of the formation of the competence of a future manager in the information and educational environment.

At the summative stage, EG and CG of students were formed according to the levels of formation of knowledge, skills, abilities and competencies: satisfactory; appropriate; high; and according to the following criteria: motivational (managerial-pedagogical), cognitive-activity (communicative), acmeological-creative (Table 1). The groups were formed in such a way that the basic training level of their members was approximately the same.

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Table 1
Indicators of the formation of knowledge, skills, abilities and competencies of bachelors and masters of experimental and control groups at the summative stage of the experiment

Criteria	Motivational (managerial-pedagogical)				Cognitive-activity (communicative)				Acmeological-creative			
Levels	EG		CG		EG		CG		EG		CG	
	Quantity	%	Quantity	%	Quantity	%	Quantity	%	Quantity	%	Quantity	%
Excellent	35	10.00	32	9.19	23	6.57	25	7.18	15	4.29	14	4.02
Appropriate	179	51.14	184	52.87	151	43.14	+ 151	43.39	140	40.00	142	40.80
Satisfactory	136	38.86	132	37.93	176	50.29	172	49.42	195	55.71	192	55.17
Total	350	100	348	100	350	100	348	100	350	100	348	100

The results of the assessment demonstrated that in CG and EG, the distribution of students by levels of knowledge and skills is statistically the same, and for each of the criteria in each of the groups average and sufficient levels prevail.

Expert assessment is expressed in the total number of points scored on the effectiveness of the method. The individual conclusions of the expert are described and taken into account as personalized if this expert is of the highest academic qualification.

The quality of the effectiveness of the results of the pedagogical experiment is shown in Table 2, where the values are calculated as the arithmetic mean of the respective levels by three criteria.

The efficiency of growth of indicators of levels of formation of information competence of future managers in the process of professional training at the formative stage of pedagogical experiment due to its introduction in the educational process is confirmed.

During the formative stage the positive dynamics in high and sufficient levels of formation of information competence of future managers is established in CG and in EG, compared to the established statistical equality of data between groups during the summative stage.

The deviation of the levels of formation of information competence of future managers in EG and CG during the formation and monitoring stage is recorded (Table 1) (diagnosis of the dynamics of changes in the level of formation of knowledge, skills, abilities and competencies of bachelors and masters in experimental (EG) and control (CG) groups compared to the summative stage).

The following hypotheses are formulated:

- zero hypothesis (H0) — the level of formation of competencies by the j-th criterion is the same in the experimental and control groups at the summative stage of the experiment;
- alternative hypothesis (H1) — the level of formation of competencies by the j-th criterion differs significantly in the experimental and control groups at the summative stage of the experiment.

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Table 2
Dynamics of changes in the level of formation of knowledge, skills, abilities and competencies of bachelors and masters in the experimental and control groups at the formative and monitoring stage of the experiment (compared to the summative stage)

Criteria Levels	Motivational (managerial-pedagogical)						Cognitive-activity (communicative)						Acmeological-creative					
	EG			CG			EG			CG			EG			CG		
	Quantity	%	Deviation %	Quantity	%	Deviation %	Quantity	%	Deviation %	Quantity	%	Deviation %	Quantity	%	Deviation %	Quantity	%	Deviation %
Excellent	43	12.29	2.29	34	9.77	0.57	31	8.86	+ 2.06	27	7.76	0.63	23	6.57	1.91	16	4.60	0.37
Appropriate (B C)	204	58.29	7.14	192	55.17	2.30	176	50.29	6.74	159	45.69	1.93	165	47.14	8.04	150	43.10	1.80
Satisfactory	103	29.43	- 9.43	122	35.06	- 2.87	143	40.86	+ - 8.80	162	46.55	- 2.56	162	46.29	- 9.95	182	52.30	- 2.17
Total:	350	100	X	348	100	X	350	100	X	348	100	X	350	100	X	348	100	X

The hypotheses were tested using the Pearson criterion (χ^2), which estimates the difference between the two distributions. The results are presented in Table 3.

Table 3

The value of Pearson criterion χ^2 for the experimental and control groups at the summative stage of the experiment

Criteria	Motivational (managerial-pedagogical)	Cognitive-activity (communicative)	Acmeological-creative
$\chi^2_{observation}$	1.42	1.62	0.89
$\chi^2_{critical}$ ($\alpha = 0.05$)		6.0	
$\chi^2_{critical}$ ($\alpha = 0.01$)		9.2	

As $\chi^2_{observation} < \chi^2_{critical}$, the hypothesis H0 about statistical equality with reliability of 0.99 level by all three criteria of knowledge level of students in both groups is accepted.

In general, the summative stage of the experiment permitted to establish that students lack knowledge about the basic principles of quality assurance of education, methods of assessing the quality of educational activities of higher education institutions.

At the formative and monitoring stage of the pedagogical experiment, the dynamics is due to the provision of the developed scientific-methodical and information-analytical support, namely:

- Working programs (hygiene and sanitation, engineering graphics, tourism technology, international hotel industry, industry business planning, consumer behavior);
- Manuals for practical purposes (workshops on general psychology, psychology of management and conflict studies);
- Methodical recommendations on the organization of the educational process of practical training in hygiene and sanitation, engineering graphics, business process re-engineering for hoteliers-restaurateurs, basics of psychology and etiquette of professional communication, consumer behavior, management psychology, writing a term paper on tourism organization, training practices for managers in the hospitality industry for bachelors;
- Workbooks on the psychology of working with people, the psychology of business relations, the basics of psychology and etiquette of professional communication; efficiency of access to scientific and methodological support of portability of programs, as well as the possibility of self-study and self-assessment (testing, creative, situational tasks) for participants in the educational process and external evaluation.

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- The use of the specified electronic-educational resource and organization of webinars ("Innovative electronic means: organization and support of continuity of educational process"; "Electronic educational resources: innovative means of increase of digital competences of a teacher", "Electronic educational resources: innovative means of increase of digital competences of future managers") permitted to intensify the independence of students to deepen and expand their socio-informational competence, increase readiness for adaptation in the professional environment.

After the formative and monitoring stage of the experiment, the assessment of the level of formation of future managers of social and cultural activities (SCA) with the necessary knowledge, skills, abilities and competencies was obtained again. There are obvious positive changes in the level of professional and practical knowledge, skills, abilities, competencies of future managers in EG, which was similar to that of managers in CG at the beginning of the experiment. The highest level of acmeological and creative criterion was doubled. By all criteria, the levels from medium to high increased by an average of 7.8%.

The formative and monitoring stage consisted of the experimental verification of the system of professional training of future managers. The effectiveness of assessment is implemented through internal and external expert assessment during the use of individual (non-standardized, personal survey and creative), group methods of interviewing, testing and survey, and team (brainstorming, trainings, webinars, formal comparison) methods.

Expert assessment of the level of formation of socio-information competence of managers by employers, their practical training, the effectiveness of the interaction of HEI with priority areas of professional employment (hotel and restaurant, leisure, recreational, tourism) showed positive dynamics (Table 4): at the excellent (high) level — 1.96% in EG compared to CG; at the appropriate level — 4.01%, and on the satisfactory level — 5.98%.

Table 4
Levels of formation of information competence of bachelors and masters

Sample	Formation levels						Total
	Excellent (high)		Appropriate		Satisfactory		
	Quantity	%	Quantity	%	Quantity	%	
EG	32	9.14	182	52.00	136	38.86	350
CG	25	7.18	167	47.99	156	44.83	348

To test the validity of the developed model of the system of professional training of future managers the statistical methods from the theory of hypotheses were used. Similarly, the reliability of results obtained using the Pearson criterion χ^2 was verified.

For the purpose of the qualitative analysis of the developed methodology, the expert assessment was carried out on the basis of the expert survey "Questionnaire of competence of future managers". Qualitative criteria of efficiency of the model of formation of competence of teachers by the integrated indicator.

The following hypotheses were made: direct hypothesis H2 — the difference in the results on the levels of formation of socio-information parametric diagnostics of the level of

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competence in EG and CG is not significant; alternative hypothesis H3 — the difference in the results on the levels of socio-information competence in EG and CG is significant. The results were presented and $\chi^2_{observation}$ – generalized value of the Pearson criterion was calculated. In the case of increasing the level of reliability to a = 0.01, confirmation of the conclusions about the improvement of the level of socio-information competence of students of the experimental group was obtained only by motivational (managerial-pedagogical) and acmeological-creative criteria with reliability 0.99 as well as in general.

Discussion

The authors made the theoretical analysis of the scientific development of the set problem, defined the basic concepts, and outlined the areas of the study. The urgency of the topic is confirmed by the presence of some contradictions in this area, in particular: between the need to take into account the individual level of information culture of undergraduates and the imperfect nature of diagnostic resources of higher education institutions in this matter; between the requirement for managers of organizations as leaders of digital innovations in professional activities and insufficient pace of updating the content of education in terms of information technology; between the specific nature of the system to support management decision-making, the use of corporate information systems and business automation in modern management and the isolation of master's educational practices from the realities of industrial and social processes.

The practical experience of professional training of future managers in higher education institutions was generalized. Thus, it was found that a significant number of master's degree managers have almost no skills in analysis and synthesis of information, its critical evaluation; no motivation to master modern information and communication technologies, no knowledge of software tools designed directly for management, as well as an understanding of the rules governing the exchange of information in society.

The analysis of existing ideas and models to develop the described aspects of the information culture of managers during master's studies demonstrated that a promising way to improve the information culture development is to increase attention to practical skills in information and communication technologies, project management systems, and database management systems. At the same time, when developing the information culture of master's degree managers, it is advisable to prepare them for using "cloud" services and individual mobile devices for professional purposes.

Considering the identified contradictions and the present state of postgraduate education of managers in terms of information culture, it was stated that it is advisable to develop corresponding pedagogical conditions and an innovation model. It was substantiated that the necessary precondition for effective development of the information culture of managers in the postgraduate education system is to create a collective information environment at a higher education institution, which primary purpose is to improve the effectiveness of methodological support of the educational process.

The professional training system for future managers in the information-educational environment and organizational-methodical support of its implementation were developed and theoretically substantiated. These conditions were created by implementing the author's model of the corresponding process, which includes four stages.

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The preparatory stage involves creating and adjusting the HEI information environment based on LMS Moodle, exchanging experience with the use of this environment between teachers, and activating the cognitive activity of master's degree managers. The basic stage provides for master's degree managers exchanging experience using information systems in professional activities, updating their basic knowledge in the field of information, and developing skills in the use of modern project management systems and databases. The master's degree managers actively using the HEI information environment and feedback from teachers via Skype is a distinctive feature of the independent cognition stage. The control stage involves summing up the process of developing the information culture of managers of the organization through a comprehensive diagnosis of its level. At each stage, the emphasis is made on the norms of management information ethics.

Conclusion

During the experiment, the authors conducted an audit of the state of student motivation for professional training and analyzed the data of the sociological survey, which allowed them to find out the awareness, attitude, and wishes of students concerning the implementation of the system of professional training for future managers in the information and educational environment, which accumulates the need to implement innovative technologies of digitalization of management in the cultural and leisure sphere.

At the summative stage, the assessment results showed that the distribution of students by levels of knowledge and skills is statistically the same. With that, for each criterion, average and sufficient levels prevail in CG and EG.

At the formative stage of the pedagogical experiment, the authors confirmed the efficiency of growth of the levels of socio-information competence development of future managers in professional training due to its introduction into the educational process. During the formative stage, the positive dynamics in high and sufficient levels of socio-information competence development of future managers is established in CG and EG, compared to the established statistical equality of data between groups during the summative stage, and the deviation of the levels of socio-information competence development of future managers in EG and CG is recorded.

The study does not exhaust all actual and practically significant tasks of professional training for future managers in the information and educational environment. Therefore, scientific and methodological provisions for developing digital support for distance training of future managers will require further study.

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Authors' Contributions

Moldabek Kulakhmet performed an experimental design and analyzed the data. Alfira Hajrullina defined the concept and methodology of the research. Nataliya Oleksiuk ranked the data into tables and figures. Miroslav Tvrdon performed the literature survey. Oksana Protas and Viktoria Ragozina customized the manuscript to meet the requirements of the journal.

Declaration of Conflicting Interests

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The authors confirm that research involving human participants, human material or personal data complies with all legal and ethical requirements and other applicable guidelines.

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