

Model of Scientific and Methodological Support for Training of Mentors for Vocational Education System in the Conditions of Digitalization

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Abstract. Under the influence of digitalization, pedagogical activity in the system of modern vocational education is complicated and requires the mastering and improvement of competences in the field of design and the creation of a practical-oriented environment for training. Mentoring in such a system is becoming a key element in the training of competitive personnel. In this regard, it is fair to speak of the relevance of teacher training on the basis of the principles of variability and modularity, with the possibility of providing different entry paths, taking into account the availability or lack of experience in pedagogical activities, as well as basic profession and individual needs. The study is based on the use of methods of theoretical analysis, systematization, generalization of scientific and pedagogical literature on the topic of research, modeling. In the course of the study, the significance of the mentor's psychological and pedagogical competence for vocational education system was shown, the content of its motivational-value, cognitive, process-activity, and reflective-analytical components that determine the effectiveness of the implementation of productive mentoring in the context of digitalization. A structural model of scientific and methodological support for the training of mentors for vocational education system in the context of digitalization is proposed.

Keywords: digitalization, professional education, mentor, scientific and methodological support, model.

1 Introduction

Studying the works of teachers, practitioners, producers concerning the modernization of vocational education [1-5] it is possible to summarize systemic problems of professional education, there are: unmanageable impact of digitalization on the quality of personnel training; dynamics of stakeholders "requirements to the quality of education as a dynamic indicator, the criteria of which also change as the social order is renewed to the university in conditions of digitalization, against the background of trends of globalization, informatization, etc.; low professionalism of training activities; the difficulty of integrating educational and professional standards and the need to focus them ahead; insufficient format of interaction between education and production; lack of scientific and methodological support for vocational training in vocational education organizations, which leads to scientific, organizational, psychological and pedagogical functions of education [6-9].

Strategic documents adopted by the Government: a set of measures aimed at improving the vocational education system; plan of measures to ensure productivity improvement, creation and modernization of high-productivity jobs; the plan of measures aimed at popularizing workers and engineering professions, developed on the basis of the results of the project "Training of workers meeting the requirements of high-tech industries on the basis of dual education," emphasizes the importance of practical-oriented forms of training and defines a number of measures to motivate enterprises when they are included in the practical-oriented model of training. To date, many regional enterprises involved in the project continue to develop structured mechanisms, the characteristic feature of which is interaction between the Government, enterprises, trade unions

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and educational organizations, the latter of which perform a supporting, cultural, developing and organizational-accompanying role, leaving the priority of training to enterprises [10-13].

One aspect of the implementation of the practical-oriented model of vocational education is the introduction of a mentoring system, which is in no way an innovative mechanism, and has a centuries-old history, ensuring entry into the craft, profession [14], but definitely requires rethinking in the context of digitalization. In our study we rely on the definition of A.R. Masalimova, representing mentoring "as a social, pedagogical, economic and production phenomenon in the conditions of modern enterprises, a form of corporate training of young specialists, contributing to the maintenance of inter-firm competition, viability, status, stability of enterprises and preservation of their information confidentiality" [15].

2 Literature review

Analysis of scientific and pedagogical literature shows that in studies of the Soviet period:

- psycho-pedagogical basis of mentoring as a pedagogical system developed [16-19];
- peculiarities of mentoring system organization as a form of industrial training are identified [20-22];
- social-psychological [23-24] historical [25] aspects of formation and development of the institute of mentoring are revealed.

In research of the modern period:

- traditions of mentoring in the history of domestic education are revealed [26];
- mechanisms and conditions for the formation of vocational and pedagogical competence of mentors have been developed [27-29];
- the psychological content of mentoring is justified [30-31];
- theoretical, methodological and methodological bases of corporate training and advanced training of enterprise personnel have been developed [15, 32-35].

In foreign research, the foundations of mentoring are revealed in works by H. G. Bauer (2010) [36], M. J. Boca [37], J. Homburg [38], J. Niedermair [39].

At the same time, the problem of training mentors for the vocational education system in modern conditions, the issue of scientific and methodological support of this process in the conditions of digitalization, has not been sufficiently studied.

3 The experimental part

As part of our study, we consider it appropriate to highlight four main functions of the mentor:

- a professionally-oriented function that determines the formation of professional competencies and production experience of the trainee, corresponding to his future qualifications;
- motivational-value function, which involves the formation of meaningful positive motives from interns to the chosen professional activity, their inclusion into corporate values and traditions of the enterprise, the formation of their corporate culture;
- management and consulting function, involving the organization and management of training of interns, including in the framework of joint consultations with teachers;
- methodological function, which consists in the development, adaptation, implementation of effective educational and educative technologies for training trainees.

Based on the functions of a modern mentor that we highlighted for the vocational education system, in addition to high-quality professional training, the presence of a corporate culture, leadership qualities, personal maturity and responsibility, the need for psychological and pedagogical training is obvious. The result of this training will be the formation of a special psychological and pedagogical competence of the mentor, as a combination of his knowledge, abilities and readiness for the implementation of pedagogical activity, providing high-quality results and effective professional interaction with students in digitalization.

The structure of psychological and pedagogical competence of the mentor, in our opinion, includes a set of the following components:

- motivational and value component, which ensures, based on the system of interests and motives of the mentor, his vocational and pedagogical behavior, focus on the design and implementation of the educational process in the framework of corporate culture;
- the cognitive component due to methodological, managerial, psychological, pedagogical and professional knowledge of the essence of vocational training and its technologies;
- procedural and activity component, which involves ownership of methods of organization of training of trainees considering individual peculiarities of trainees, opportunities of individual and group training, creation of educational communications and environment for professional development of trainees;

- reflective and analytical, characterized by the ability to holistic vision and analysis of the results of their own mentoring activities, providing the basis for self-improvement, self-development and self-realization.

4 Results and Discussion

For realization of a system of training of mentors it is developed on the basis of an algorithm of pedagogical modeling of A.N. Dakhin [40] structural model of scientific and methodical ensuring training of mentors for the system of professional education in the conditions of digitalization. By scientific and methodological support, we mean a set of methodological and didactic developments that meet the modern requirements of pedagogical science and practice. Two levels of it were highlighted: scientific-theoretical and scientific-practical (Table 1).

Table 1. Structural model of scientific and methodological support for training of mentors for vocational education system.

Normative target block	Normative base		↔	Social order		SCIENTIFIC-THEORETICAL LEVEL
	↓					
	Purpose: formation of psychological and pedagogical competence of mentors for vocational education system.					
Tasks: formation of a motivational and valuable component; formation of a cognitive component; formation of a procedural and activity component; formation of a reflexive and analytical component.						
↓						
Methodological block	Methodological approaches: andragogical; integrative; modular and competence-based.		↔	Methodological principles: targeted orientation, development, social partnership, integration of vocational and pedagogical activities, information value		
	↓					
Substantial block	Theory of adult education, andragogics, acmeology			Strategic objectives of the enterprise, prof. standards, corporate culture		
	↓					
	selection of components of psychological and pedagogical competence of mentors design mentor training content					
	development of a mentor training program					
	development of mentor training modules					
↓						
Organizational block	<i>Organizational and pedagogical conditions</i>	1. development of training and methodical support for the training of mentors				SCIENTIFIC AND PRACTICAL LEVEL
		2. development of an organizational structure for the training of mentors				
		3. psychological and pedagogical support for the training of mentors				
		4. development of diagnostic tools for the training of mentors				
↓						
Technological block	Implementation of mentor training modules					
	Forms: -individual, group, frontal Lectures, seminars, independent work - lectures, seminars, independent work					
	Technologies: ICT, modular learning, problem learning; remote technologies of training					
↓						
Diagnostic block	Diagnostic criteria for each qualification	Entrance control				
		There is no experience of mentoring	Brief experience of mentoring	There is an experience of mentoring		
		Self-checking of students				
		Total control of students				
		Level of psychology and pedagogical competence				
		admissible	average	high		
↓						
RESULT: INTRA-CORPORATE QUALIFICATION						

MENTOR	TUTOR	COACH	FACILITATOR
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Scientific-theoretical level includes: targeting, theoretical bases, concepts, principles and design of the content of training mentors for vocational education system.

Scientific and practical level Involves development of organizational and pedagogical conditions, selection of technologies and diagnostic tools for training mentors.

The peculiarities of scientific and methodological support of training of mentors are: implementation of pedagogical training within the framework of internal training; The need for mentors to participate in the development and education of learners; Personal orientation and personal significance of the result of the education of mentors for the student and employer, which determine the competitiveness of each of them in the labor market.

The developed structural model consists of six interconnected blocks:

Regulatory and objective, ensuring, based on the requirements of the employer and social order, the targeting of the training of mentors for vocational education;

methodological, forming the orientation of scientific and methodological support for the training of mentors and its logical structure on the basis of a set of approaches (andragogic, integrative, modular-competent) and principles (targeted orientation, development, social partnership, integration of vocational and pedagogical activities, informativity);

- informative, defining the content of the process of the formation of psychological and pedagogical competence as the core of the training of mentors, forming an integrated training system from setting goals to achieving results;

- organizational, including a set of organizational and pedagogical conditions for the implementation of scientific and methodological support for the training of mentors, which are necessary requirements for the quality implementation of the mentor training program and create the necessary environment for its implementation and pedagogical management;

- technological, which includes methods for organizing the process of training mentors based on the problematic and personality-active teaching concepts, which are necessary tools for the formation of psychological and pedagogical competence;

- diagnostic, criteria-based management and self-management of the process of training mentors through input control, self-control and final control of trainees; within the framework of this block the final level of psychological and pedagogical competence for each training cycle is determined and the internal qualification of the mentor is assigned [41-44].

5 Conclusions

The blocks presented by us (regulatory, methodological, informative, organizational, technological, diagnostic) together constitute a structural model of scientific and methodological provision of training of mentors for the system of professional education in conditions of digitalization, which contains all necessary functional information for planning, organization and implementation of internal training of mentors.

The proposed structural model of scientific and methodological support for the mentors' training is organically integrated into the internal company training system for the staff, provides the formation and expansion of psychological and pedagogical competencies of mentors, contributing to the personal development of students and the implementation of basic functions when working with interns for the purpose of training, social adaptation and professional development. The specifics of the mentor training program consists in step-by-step training and sequential mastering of «mentor, tutor», «coach», «facilitator» levels with assignment of corporate qualifications. However, the next level of mentor cannot be assigned until the previous one is received. Thus, differentiated training is carried out with building of their own development path and individual educational routes for mentors, which has become possible, including with the help of the digital navigation of the professional growth of a mentor that we are implementing as part of the experimental work.

The results of the presented study involve further study of problems of development of mentoring, internal training of employees of enterprises, development of professional competences, improvement of methods of internal training, as it is necessary to train not only certain actions and operations at the workplace, but also research, project, design activities. The relevant material is currently undergoing an experimental effectiveness test at the Autonomous Non-Profit Organization Kazan Open Talent University 2.0 in the form of a mass open online course (MOOC).

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