MODELL DER BILDUNG VON BERUFSKOMPETENZEN DER ZUKÜNFTIGEN MOTORMECHANIK IN EINER PRAXISORIENTIERTEN BERUFSBILDUNGSUMGEBUNG

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ANMERKUNG: Die Technologie der Berufsausbildung von Fachleuten in technischer Richtung in Berufsbildungseinrichtungen auf der Grundlage eines kompetenten Ansatzes sollte den natürlichen Formen menschlichen Handelns entsprechen: Kommunikation und Tätigkeit. Ein solcher Prozess kann durch eine Teamform von Aktivitäten organisiert werden, die auf die Bildung kommunikativer, intellektueller und Managementkompetenzen abzielen.
Schlüsselwörter: Kompetenz, Mechaniker, Automobilunternehmen, Autohäuser, Wartungsservice, Berufsausbildung, Automobil.

MODEL OF FORMATION OF PROFESSIONAL COMPETENCES OF FUTURE MOTOR MECHANICS IN A PRACTICE-ORIENTED PROFESSIONAL EDUCATIONAL ENVIRONMENT

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Abstract: Technology of professional training of specialists in the technical direction in institutions of professional education, based on a competent approach, should correspond to the natural forms of human activity: communication and activity. Such a process can be organized
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through a team form of activity aimed at the formation of communicative, intellectual, managerial competencies.

Keywords: Competence, mechanic, automobile companies, automobile shops, maintenance service, professional training, automobile.

Introduction

New programs of secondary professional education consistent with the new State educational standards have been introduced in our Republic from 2020, which are aimed at solving the problem of training highly qualified and competitive specialists. In order to create a practice-oriented learning environment, the following work is carried out based on agreements between social partners, enterprises, employers in professional education institutions based on the requirements specified in the scientific and methodological support of the educational process or in accordance with their content:

i. targeted personnel training, retraining and advanced training;
ii. internship in automobile companies, automobile shops, service centers;
iii. involvement of representatives of social partners as experts in the implementation of inspections, assessment of qualifications, improvement of programs, scientific and methodological support, certification of graduates;
iv. joint development of professional modules of educational programs aimed at the formation of competitiveness, general and professional competencies of future mechanics in a practice-oriented educational environment [1].

The main objective of professional education institution is to train highly qualified and competitive junior specialists meeting the requirements of modern labor market. The process of formation and development of competencies that ensure competitiveness in future professionals is carried out based on specific didactic approaches.

The technology of formation of competencies to ensure the competitiveness of future mechanics consists of the following stages: determination of objectives of education, selection of pedagogical communication tools that allow effective implementation of content, development of special training course content, control over the formation

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of competencies in future mechanics, further improvement of special training program [2]. The technology to be implemented at each stage is shown in Table 1.

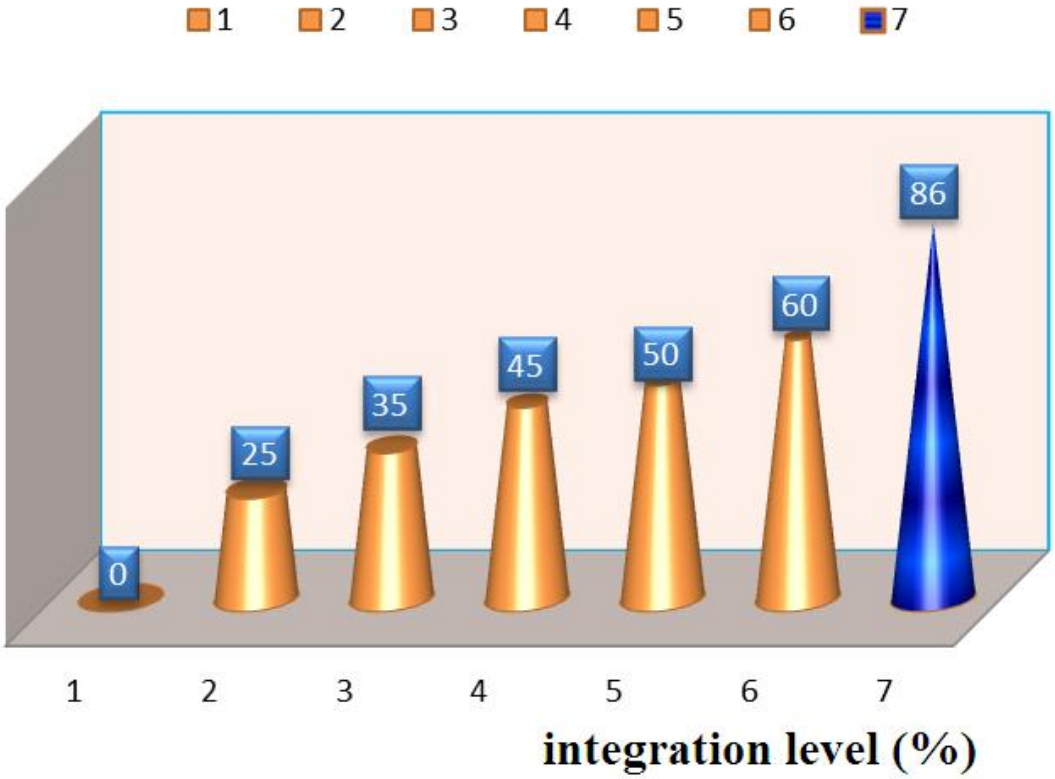

Fig. 1. Diagram of the dynamics of internal integration in the implementation of learning process

The object of activity, the measures to be taken and their results for the technology to be introduced at each stage are highlighted in the table 1. This allows any teacher to take a systematic approach to achieving the planned outcome in accordance with the set objective [3].

The algorithm for designing the process of formation of competencies of priority (specified in State educational standards) and differentiated (formed based on the requirements of employers, i.e. specific to the nature of professional activity) ensuring the competitiveness of future mechanics is presented [Table 1].

Table 1

#	***The name of the block***	***Subject***	***Activity***	***Result***
1	Objective	Social state in society	Study of State	Structural model of

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			educational standards and employer requirements	competitive motor mechanics competencies
2	Content	Structural model of competitive motor mechanics competencies	Disciplines and special course on “Methods of formation of competitiveness of future mechanics in the environment of practice-oriented professional education”	Program of disciplines and special course
3	Professional competencies formed in graduates	Course program	Selection of teaching forms, methods and tools for the study of the course and the formation of competitiveness	Matrix of interdependence of competitive motor mechanic competencies and elements of studied disciplines and special course
4	Technology of teaching disciplines and special courses	relationship of the competitive motor mechanic competencies and the subjects studied and the elements of the special course	Technological unit of content and means of pedagogical communication	Competency formation stages in the future competitive motor mechanic (distribution by semesters) and expected results by semesters
5	Control	Competency formation stages in the future competitive motor mechanic (distribution by semesters) and expected results	Control and measurement work to determine the compliance of the obtained results with the State educational standards and employer requirements	Matrix of results that does not meet the State educational standards and employer requirements
6	Add correction	Results that does not meet the State educational standards and employer requirements	Overcoming inconsistencies and improving teaching technology	Making changes to the competitive motor mechanic training system

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In ensuring the competitiveness of the professional educational institution and the competitiveness of future mechanics, there is an important link between them – the teaching staff [4, 5]. Because the quality and effectiveness of education, ensuring competitiveness depends primarily on their competence. Therefore, the directors of professional colleges need to create all the conditions for teachers who are engaged in the formation of competitiveness in future mechanics for constantly improve their professional skills.

In the additional training sessions, various business games and "brainstorming" are conducted for teachers, in which they can assess the importance of consideration the suggestions of employers when working with students. The team of teachers is of special importance – the pedagogical team must work in one direction [6].

The algorithm for designing educational technologies consists of the set of structural-functional (objective, content, technological, practice-activity, evaluation) blocks. They allow forming the project as a specific type of pedagogical activity to achieve a guaranteed result.

The objectives block includes identifying and diagnosing the planned outcomes of training, teaching and development.

The content block involves the selection of educational information to achieve its objectives, its quality assessment based on indicators of mastery of materials, fundamentality, and scientific character, level of progress, professional orientation, and ability to form self-analytical (reflexive) skills.

The technology block focuses on the selection of pedagogical means of communication that allow achieving goals and introducing content, integrating them into a single technological chain. Indicators of resilience, reliability, ergonomics, uniformity and standardization determine planned quality [7].

Fig. 1 shows the technology of formation of professional competencies of future mechanics only based on the State educational standards and employer requirements in the teaching of the subject "Diagnostics and maintenance of vehicles and engines" and a special course "Methods of forming competitiveness in future mechanics in a practice-oriented learning environment".

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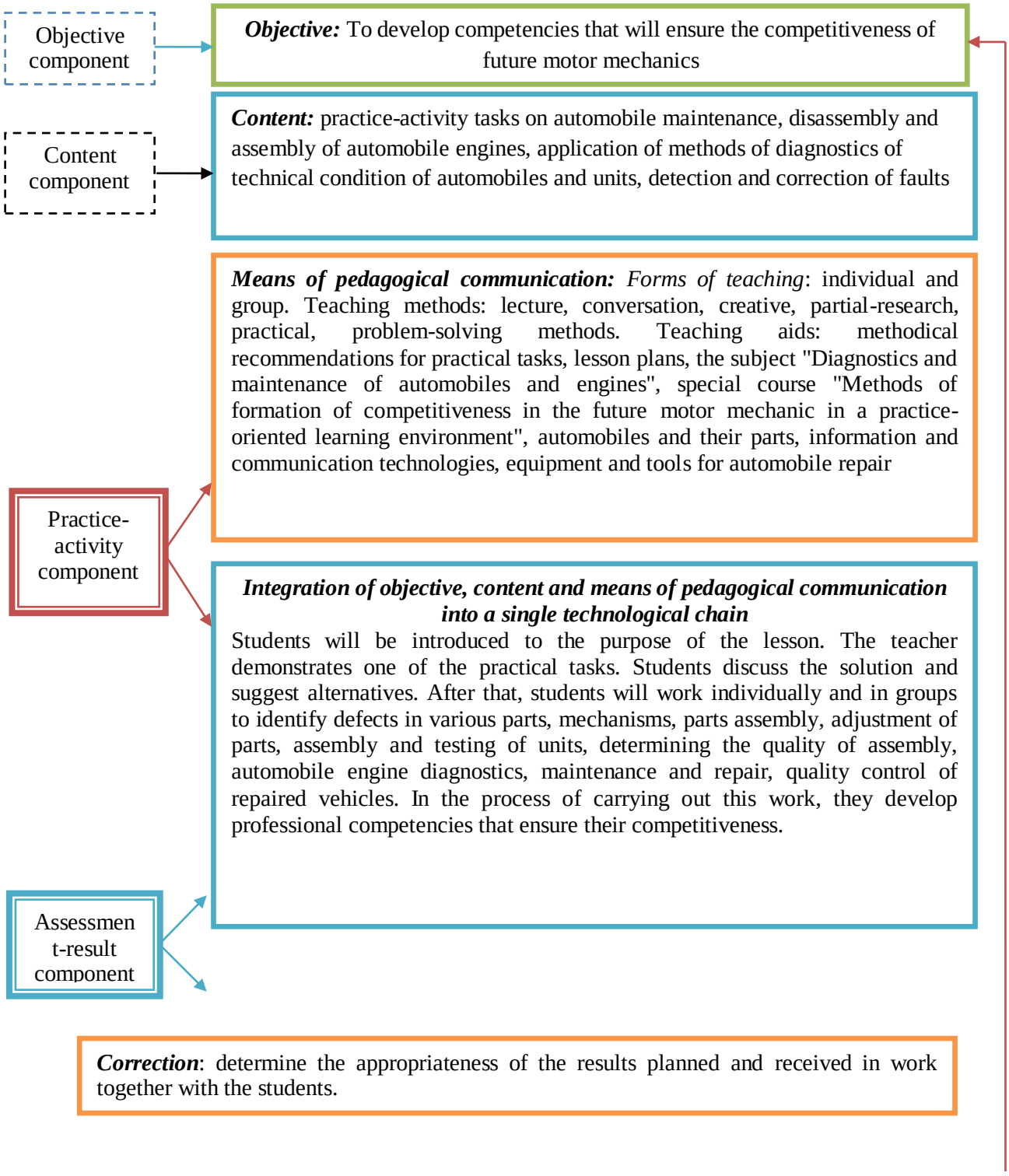

The assessment block involves evaluating the design quality of the learning process as a set of properties. Management effectiveness is

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determined by the probability of achieving the planned level of training of specialists on task indicators [8].

There is a need of continuously improving the technology of formation of competition, taking into account the specifics of the special course "Methods of formation of competitiveness in future mechanics in a practice-oriented professional education environment" for the formation of competencies to ensure competitiveness in maintenance technicians.

This theoretical model can be successfully implemented in the training of specialists in the field of road transport at the College of motor and roads [9]. The results of surveys carried out with students indicate that when using this technology, their level of satisfaction with learning activities has increased. By international standards, it is known that the satisfaction of creative needs is the most important indicator of the quality of technology. In addition, employers also value the quality of professional training of hired college graduates high enough. First, it is determined that the professionally important personal qualities and competencies of the college students studying in the considered professional specialties meet the State educational standards and employer requirements.

The professional competencies formed in mechanics based on the requirements of employers are of great professional importance. Together, these competencies form the information, organizational, and technological competencies that serve to ensure the competitiveness of future professionals.

The characteristic given by A.V. Khutorsky is taken as a basis in defining the concept of information competence. According to him, information competence is the ability to independently search, find, analyze and select information, organize, modify, store and transmit information using real objects and information and communication technologies. This competence allows students to work with information both in the classroom and in extra-class activities [10].

In order for future mechanics to be competitive, they need to be able to break down key issues and find the most optimal solutions for them, and thus achieve organizational and technological competence.

Organizational competence means the organizational skills, time management, and independent decision-making skills of the graduates. It is organizational competence, along with information and technical

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competencies, which is very important for a mechanic to work with employers and customers [11].

The following disciplines are required in the formation of the above competencies: industrial safety and health, automobile and engine theory, automotive structure, automotive electrical equipment, diagnostics of automobiles and engines, their maintenance, automobile repair.

Conclusion

1. Based on the formation of the necessary competencies of future technicians and mechanics for maintenance and repair of modern cars in colleges of automobiles and roads, it is necessary to improve the scientific and methodological support for the development of competitiveness in a practice-oriented educational environment.

2. Based on the research, a theoretical model of the organizational and pedagogical structure of the process of formation of professional competitiveness in future motor mechanics (technicians-mechanics) in the environment of practice-oriented professional education was developed.

3. The system of scientific and methodological support and organizational and pedagogical conditions for the introduction of the organizational and pedagogical structure of the process of formation of professional competitiveness in future technicians and mechanics have been identified.

4. The importance of the normative-legal, educational-methodical, information-technological and organizational-methodical components of the system of scientific-methodical support of formation of professional competitiveness in future mechanics in the practice-oriented educational environment in the professional educational institution is defined.

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