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РЕАЛИЗАЦИЯ И ВОЗМОЖНОСТИ ПРОФЕССИОГРАФИЧЕСКОГО МОНИТОРИНГА В ВЫСШЕМ УЧЕБНОМ ЗАВЕДЕНИИ

Аннотация: в главе представлены на английском языке результаты наших исследований, вышедших ранее на русском языке, для более широкого круга читателей, преподавателей, ученых. Исследование посвящено инструменту, используемому при формировании мотивационного компонента курсантов морского вуза, который оказывает огромное значение на формирование их профессиональной компетентности, особенно, когда профессиональная подготовка проводится в смешанном формате. В разработанной нами модели формирования мотивационного компонента профессиональной компетентности курсантов морского вуза в условиях смешанного обучения в качестве инструмента оценки и диагностики применяется профессиографический мониторинг, который мало изучен в настоящее время. С помощью него становится возможным не только динамичная количественная оценка уровня мотивационного компонента, но и корректировка образовательного процесса.

Ключевые слова: профессиографический мониторинг, модель, мотивационный компонент, профессиональная компетентность, курсанты, морской вуз, смешанное обучение.

Abstract: in this paper, we want to present in English the results of our research, which was previously published in Russian, to a wider range of readers, teachers, scientists. The study is devoted to a tool used in the formation of the motivational component of cadets of a maritime university, which has a great importance on the formation of their professional competence, especially when professional training is conducted in a blended format. In the model developed by us for the formation of the motivational component of the professional competence of cadets of a maritime university in a blended learning environment, profессиographic monitoring is used as an assessment

and diagnostic tool, which is little studied at present. With the help of it, it becomes possible not only to dynamically quantify the level of the motivational component, but also to adjust the educational process.

Keywords: *professiographic monitoring, model, motivational component, professional competence, cadets, maritime university, blended learning.*

In conditions when the educational process can be unstable, when new circumstances have appeared in our lives that we cannot ignore, the question arises about the use of new ways to assess and form the components of professional competence. When conducting classes in a remote format, the main burden of searching for information and studying it was assigned to students in the format of independent work. During the transition to blended learning, self-employment has decreased, but still remains high. And for the successful development of the educational program, students themselves must be interested and motivated to acquire knowledge, skills and abilities.

Despite the existence of programs aimed at digitalizing higher education, for a long period of time, no other format of study, except traditional full-time, was considered as an equivalent replacement. The pandemic has accelerated the introduction of new tools and their more active use. In studies conducted since 2020, it is noted that students and teachers have adapted to the new format of classes, however, it is important to determine the effectiveness and quality of education received by a future specialist in such a training format and to assess the level of the motivational component of professional competence of students in a blended educational environment, as the student becomes more autonomous, more separated from the student body and the teaching staff, more responsible for independent learning and development. In this regard, the problem of the quality of education in conditions of blended learning, its effectiveness and the formation of the motivational component of a student's professional competence becomes a frequently discussed, debatable issue [2; 5].

Taking into account the specifics of the implementation of professional training for future maritime activities in modern conditions, scientific and practical interest in the issue of monitoring and evaluating the level of professional competence in general

and its components in particular is increasing. Due to the pandemic, there was a sharp and dynamic change in the educational process, a blended learning format began to actively develop and introduce.

After graduation, the cadets will be carriers and translators of certain qualifications, competence and motivation, and therefore it becomes necessary such a process within the framework of vocational education and training, which will be aimed at the process of forming the motivational component of professional competence. Cadets of a maritime university in a blended learning environment, since at its low level it will be difficult for cadets to prepare both competent and qualified specialists, since students must work independently most of the time in a blended learning environment. If the motivational component of professional competence is not formed or is at its low level, the graduate becomes uncompetitive in the labor market, since during the training process he was poorly interested in gaining knowledge, did not interact with fellow students, teachers, and team members. the crews of the ships did not receive and did not master the necessary skills and abilities in the course of practice, which means that they did not receive the necessary professional competence.

Most employers currently consider graduates of marine specialties not only according to their availability of the necessary set of professional knowledge, but also taking into account the socio-psychological qualities and characteristics of the future marine specialist. The main requirement is that a specialist has the opportunity to self-study in order to improve his activities, since a marine specialist is required not only to perform professional duties, but also to constantly improve his knowledge, improve skills and abilities throughout his activities. and this is possible if he has motivation for academic and professional activities. With an unformed motivational component of professional competence, a graduate becomes unclaimed in the labor market, since he cannot realize himself as a member of a professional sphere, industry, does not understand the importance of constant self-development and self-study, which ultimately leads to less successful professional self-realization or the field of professional activity.

Modern digital technologies used in the educational process help to solve the problem of high-quality and comprehensive professional training of marine specialists.

The use of a blended training format for marine cadets makes it possible to build individual educational trajectories, however, when implementing blended training, new assessment formats are required, including components of professional competence. The motivational component is dynamic, changing under the influence of external and internal factors, which necessitates the use of new methods and methods for assessing the components of professional competence, including motivational, among cadets of a maritime university in conditions of blended learning throughout the educational process. a process that requires the use of new assessment tools.

In her work, T.S. Akankina points out that the development of new innovative digital technologies is necessary for the development and effective functioning of education, as well as their integration and interaction with the educational system are necessary [1]. I.Yu. Starchikova speaks about the importance of evaluating student learning outcomes using the means of an electronic educational environment that allows building the educational process with taking into account the individual qualities of students [18]. The pandemic period led to drastic changes in the education system, requiring the efforts of both students and teachers, and allowed people to think about themselves, their goals, relationships and personal meanings [17].

In the work of E. Hargittai [22], unresolved psychological problems are noted, despite the use of distance learning tools, which is consistent with the opinion of A.A. Andreev, who believed that with an increase in the volume of educational material in distance learning, losses will inevitably increase losses in the quality of information assimilation [3].

The concept of professional competence has been considered by many researchers and has different definitions. Thus, in the work of S.E. Shishov, this is understood as: «the ability and desire to work on the basis of knowledge, skills, experience, value orientations and inclinations acquired as a result of training» [20]. Readiness for activity is considered as a psychophysical phenomenon – «a person's attitude to activity, including educational or professional» [10].

According to A. A. Derkach and V. T. Myshkina, readiness for activity is «a system of such motives, attitudes, knowledge, skills and abilities that, when activated, provide a professional with the opportunity to effectively perform his functions» [7].

Currently, the process of professional training is becoming more dynamic and changeable, which leads to the need to monitor and evaluate the dynamics of the formation of the motivational component of the professional competence of cadets of a maritime university, that is, its monitoring is necessary.

Touching upon the concept of professional competence, it is necessary to define the concept of competence. I.A. Zimnaya says that competence is «an integral characteristic of personality qualities, the result of preparing a university graduate to carry out activities in certain areas... It is expressed in the willingness to carry out any activity in specific professional situations» [8].

A.V. Khutorskoy understands it as «a set of interrelated personality qualities established in relation to a certain range of subjects and processes and necessary for high-quality productive activity in relation to them» [21]. And in the works of A.M. Aronov: «the willingness of a specialist to engage in certain activities» [4].

In the context of the implementation of a blended learning format, a special approach is needed to determine the quality and effectiveness of this type of training, assessment and monitoring of the components of professional competence, including the motivational component. The motivational component is associated with the need to form educational and professional motivation among cadets, since in blended learning (and even more so in distance learning) they should study independently, search for information, have a need for training and becoming a qualified specialist. [22], and for this it is necessary to develop a motivational component.

The concept of «monitoring» was not immediately applied in pedagogical science [4]. A.A. Andreev notes: «the meaning of pedagogical monitoring is to strengthen and implement systematic quality control of the functioning and sustainability of the educational system... it becomes possible to make certain forecasts and manage the quality of the educational process as a whole» [3]. According to L.V. Shibaeva, monitoring is an element of «improving the quality assurance system by the management of

an educational institution» [19]; A.I. Galagyan and other are one of the means of «improving the effectiveness of planning a strategy for the development of vocational education» [11]. V.A. Kalney and other saw it as one of the ways to assess the quality of the educational process [9], and I.F. Golovanova was engaged in monitoring as a means of evaluating the implementation of innovative solutions in the educational process [6].

In her doctoral dissertation, S.N. Silina introduces a new term: «professiographic monitoring», which means monitoring used in vocational training in higher education institutions [12]. Then, for almost 20 years, there were no studies devoted to the study of profессиographic monitoring and the possibilities of its application in the process of vocational training in higher education institutions. We are currently revisiting this tool and considering its capabilities [13–16].

Scientific creativity in pedagogical science, new conditions of professional training and the educational process have led to the fact that control, assessment, and formation of professional competence are becoming more complex and variable, which leads to the need to study certain aspects of improving the educational system and enrich the field of professional pedagogy with new knowledge.

In the motivational component of professional competence, we distinguish three levels (low, medium, high), and the higher the level, the more perfect the internal and external relations between the subjects of pedagogical interaction.

The low level of the motivational component is associated with the lack of formulated goals, admission to university, without independent choice. Such students have a negative attitude towards the educational process and the educational institution, there is no psychological, emotional, volitional readiness to interact with teachers and fellow students. They do not have the desire and motivation to improve their educational level, they often lack fundamental theoretical knowledge, instead they have a common understanding of certain processes or phenomena.

The middle level of the motivational component is most common among university students, since all applicants have a certain set of theoretical and sometimes practical knowledge; have some idea of future professional activity, understand the goals

of training, strive to meet the requirements that will be imposed on them as future specialists in a particular professional industry. They usually successfully cope with educational activities, although the educational process attracts them less, they have no problems communicating in the study group and with teachers, but at the same time they do not take the initiative to participate in additional educational and scientific activities.

The high level of the motivational component is characterized by activity in educational and professional aspects; students have motives for cognitive, scientific and professional activities; complete all teacher assignments on time; take a responsible approach to solving necessary tasks in the learning process, practice in good faith; take the initiative when performing outside the academic load (additional classes, clubs, conferences). They have fundamental theoretical knowledge, have an idea of the norms of behavior and principles of work in the relevant professional industry, understand the purpose of their studies, the future place of work, have developed emotional and volitional stability. They have no problems in the team and in the educational institution, they have established communication, both with peers and with the teaching staff.

Differentiation of the motivational component by levels makes it possible to clearly identify the necessary impacts within the educational process, since students with a high level do not need additional influences from the teacher, but at the same time they can help the teaching staff with students with disabilities. medium and low levels of motivation. It is possible to determine the level of the motivational component using special empirical techniques (for example, the methodology of T.I. Ilyina «Motivation for studying at a university»).

In the 2021–2022 academic year, two groups of 3rd year cadets studying in the specialty «Operation of ship electrical equipment and automation equipment» in the discipline «Elements and functional devices of ship automation» took part in the formative experiment. And in the 2022–2023 academic year, the experimental groups of the control experiment were made up of cadets studying in the specialties «Operation of ship electrical equipment and automation equipment» and «Operation of ship power plants», as well as, importantly, part-time students, since due to the fact that they are

almost always on a voyage, blended training is presented. This is an extremely important and convenient mechanism for the implementation of the educational process, and professiographic monitoring will allow you to track its impact on the motivational component of the professional process. competence.

In 2021–2022, one study group became experimental (15 people, 100% boys), let's call it EG; and the other – control (20 people, 100% boys), let's call it KG.

Classes in the experimental group were conducted in a blended format, that is, in addition to face-to-face classes in classrooms or laboratories, the following were also actively used: EIOS BGARF, electronic platforms and social networks for interacting with cadets, video materials, QR codes. The final certification was also held in electronic format. The form that has not changed is the final test on the Online Test Pad platform. Each of the 50 questions is given 4 possible answers and only 1 correct one, in addition, each question is given 1 minute of time. Exam criteria – if the correct answer is 0–30 questions, then «2»; on 31–40 – «3»; 41–45 – «4»; 46–50 – «5». Each cadet received an individual link by e-mail, in which all the questions and answers are randomly mixed. The textbook «Elements and functional devices of ship automation» was actively used [37].

Classes in the control group were conducted in a traditional format.

The results of the EG survey showed that after completing the discipline, the positive attitude towards learning using electronic and digital means increased by 13.4%. The number of cadets who want to listen to a lecture with elements of electronic and digital learning has increased by 20%. The number of those who prefer a traditional lecture has decreased by 20%. The number of people who prefer online lectures of an educational resource has not changed. The number of people willing to take the exam in the form of testing using electronic platforms has increased by 20%. And motivation to study the discipline has increased by 20%.

After completing the training of the control group, the number of cadets wishing to listen to a lecture with elements of electronic (digital) learning increased by 10%, respectively, the number of cadets wishing to listen to a traditional lecture decreased

by 10%, since the number of cadets wishing to listen to an online lecture from an educational resource did not change and amounted to 20%.

The number of those wishing to take the exam in the form of testing using electronic platforms increased by 5%, respectively, the number of those wishing to take the exam by tickets decreased by 5%. The level of motivation has not changed. Both before and after the course, 70% of the cadets noted that they had a high level of motivation, and 30% – average.

Also, within the framework of this stage, a study of the motivation of cadets was conducted according to T.I. Ilyina's questionnaire «Motivation to study at a university» [38], the purpose of which was to analyze the dynamics of the level of motivation to study at a university. to examine respondents before and after classes in a blended format (EG) and classes without making changes to the educational process (KG).

In the methodology mentioned above, there are three scales: «Acquisition of knowledge» – evaluates the desire to acquire knowledge, curiosity; «Mastering a profession» – evaluates the desire to acquire professional knowledge and the formation of professionally important qualities; «Obtaining a diploma» evaluates the desire to obtain a diploma with formal assimilation of knowledge, the desire to find workarounds when passing exams and credits».

If the sum of points on the scales of «Acquisition of knowledge» and «Mastering a profession» prevails, this indicates that the student adequately evaluates the choice of his profession and satisfaction with it. On the scale of «Gaining knowledge», the maximum score is 12.6 points, on the scales of «Mastering a profession» and «Obtaining a diploma» – 10 points.

The questionnaire of T.I. Ilyina clearly testifies to the adequacy of the choice of profession by students (in our case, cadets) and satisfaction with it. The technique allows us to quantify the dominance of a particular motive.

Each of the three scales was divided into indicators showing the severity level of the corresponding scale.

Scale No. 1 «Knowledge acquisition» (maximum score – 12.6): low score (0.0 – 4.2 points); average score (4.3 – 8.4 points); high score (8.5 – 12.6 points).

Scales No. 2 «Mastering a profession» and No. 3 «Obtaining a diploma» have the same maximum score of 10.0, and therefore the division into indicators for these scales will be identical: low score (0.0 – 3.3 points); average score (3.4 – 6.7 points); high score (6.8 – 10.0 points).

The analysis of the results shows that: motivation to acquire knowledge in the experimental group increased by 26.59%, and in the control group by 13.34%, which is almost 2 times less; motivation to learn a profession in the experimental group increased by 12%, and in the control group decreased by 0.5%.

According to the motivation scale «Graduation», the indicators improved in the experimental group, decreasing by 18%, while in the control group the decrease occurred by only 3.2%.

Further research consisted in clarifying the distribution of indicators of the level of motivation of cadets to study. From the data obtained, it follows that in the experimental group on the scale No. 1 «Knowledge acquisition», a high indicator prevailed before the start of training, after training it increased by 20%. On the scale No. 2 «Mastering a profession», the average indicator of motivation was dominant, which also increased by 33.34% by the end of the year. According to the Graduation scale No. 3, positive changes also occurred – if a high level of motivation indicator prevailed before the moment of training (66.67%), then after graduation the average level began to prevail – 46.67%.

It should be noted that both groups showed positive results in increasing the motivation of cadets to study. At the same time, the experimental group showed the best results: the levels of motivation indicators on scales No. 1 and No. 2 increased by 20% and 33.34%, respectively, and the level of motivation indicators on scale No. 3 decreased by 20% and moved from a high indicator to an average one. In the experimental group, after the completion of the training period, the predominance of motives on scales No. 1 and No. 2 became clearly expressed, which indicates an adequate assessment by the cadets of the chosen profession, interest in continuing education and a desire to gain knowledge, both general theoretical and professional.

In the 2022–2023 academic year, the experimental groups of the control experiment were made up of full-time cadets of the 3rd and 4th courses and part-time students of the specialties «Operation of ship electrical equipment and automation equipment» and «Operation of ship power plants». The total number of respondents was: 196 people.

Next, the results of the survey conducted before the start of training (the first) and after its completion (the second), as well as the results of the study on T.I. Ilyina's questionnaire «Motivation for studying at a university» will be presented. submitted.

The results of the first survey.

To the question «Do you know what blended learning is?" 71.9% of respondents responded positively, while 41.8% of the total number of respondents have a positive attitude towards blended learning, and the shares of negative and neutral attitudes are equal and amount to 29.1%.

Almost half (49.5%) of respondents prefer face-to-face training, another 29.1% – distance learning and the rest (21.4%) – blended. 63.3% expressed interest in familiarizing themselves with devices and devices through the use of 3-D models. When asked about the format of passing a control test or exam, 58.7 replied that they would prefer a classic exam (using tickets), the rest expressed a desire to perform similar tasks through digital services, online.

41.3% of respondents rated their motivation level as average, 32.1% as high and 26.5% as low.

The results of the second survey.

Almost all participants understood the materials of the completed course (92.9%). In 75.5%, the attitude towards blended learning technology has changed in a positive direction, in another 12.8%, the attitude has not changed, and only in 11.7%, the attitude has changed in a negative direction. 70.9% are interested in conducting classes in a blended format, consider it more interesting, 15.3% would prefer classes only in full-time format, and 13.8% – only in a distance format.

Almost two thirds of respondents give a positive assessment of the effectiveness of teaching using blended learning technology (40.3% rated it «5» and 36.2% rated it

«4»). 42.9% of respondents used educational content uploaded to the electronic information and educational environment, sometimes 42.3%.

A positive assessment of the electronic platform for passing the exam (passing the final test) was given by 43.4% (score «5») and 33.7 (score «4») of respondents. 79.6% would prefer to take the exam using digital technologies, the remaining 20.4% chose the option of taking the exam using tickets.

71.4% of respondents had increased motivation, another 17.3% did not change and 11.2% decreased. At the time of graduation, respondents rated their level of motivation as follows: 75% – high, 17.9% – medium and 7.1% – low.

An analysis of the results using the methodology of T.I. Ilyina shows that after graduation: on the scale No. 1 «Acquisition of knowledge», the motivation index increased by 26.83%; on the scale No. 2 «Mastering a profession», the motivation index increased by 13.3%; on the scale No. 3 «Graduation», the indicator decreased by 34.4% (decrease in this case in this case, it is a positive result).

Further research consisted in clarifying the distribution of indicators of the level of motivation of cadets to study and from the data obtained it follows that on the scale No. 1 «Acquisition of knowledge», the low-level indicator decreased by 6.12%, the average – by 5.61%, and the high-level indicator increased by 11.74%; on the scale No. 2 «Mastering a profession», the low-level indicator decreased by 6.12%, the average – by 5.61%, and the high-level indicator increased by 11.74%; on the scale No. 2 «Mastering a profession», the indicator of low The level decreased by 7.14%, the average level increased by 0.51%, the high level increased by 6.63%; according to the Graduation scale No. 3, there is a decrease in the high-level indicator by 10.21%, while the indicators of the low level of motivation practically do not change – there was an increase of 1.01%, and the average level indicator increased by 9.18%.

In conclusion, we note that the pandemic period served as a «trigger» for the beginning of an active digital transformation of universities and the entire educational sphere, which fully corresponds to one of the strategic objectives of the development of the Russian Federation, the purpose of which is to ensure the global competitiveness

of domestic education. The development, testing and implementation of blended learning will allow students and teachers to interact with each other with minimal time delay, as well as ensure a smooth transition from distance learning to real (face-to-face) classes. In the context of a dynamic educational process, when the digital sphere begins to occupy an increasing amount of interaction between its participants, a new approach is needed to assess and diagnose the components of professional competence, including the motivational component. The latter is greatly influenced by educational and professional motivation, which is part of it.

With the formed motivational component of professional competence, abilities, abilities and skills will be more effectively formed, as a result of which the level of professional competence increases, the cadet's ability to become a qualified and competent specialist develops.

Professiographic monitoring becomes a tool for evaluating and diagnosing the components of the motivational component of professional competence. In the future, it can be used to evaluate all components of professional competence, which will allow for its comprehensive diagnosis, allowing students to maximize the effectiveness of training and mastering professional competencies.

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