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Simulation Play Patterning as a Motivation Tool for Students

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Abstract

Choosing one's future profession requires a person to make a comprehensive and balanced decision that shapes the motivational orientation in mastering the profession. Lack of life or business experience is a significant risk to the process of choosing one's future profession and area of subsequent specialisation. Obtaining information about the job and future working practice of specialists, the contents of the training required to be successful in this activity is possible through simulation play patterning, which allows you to identify and understand the only true direction of your specialisation within the chosen profession. In the course of research the following methods were used: theoretical analysis of the level the problems being studied are developed based on the study of pedagogical and research and methodical literature, scientific research in the given field; methods of applied sociology (personal polls, survey method); grouping, generalisation and comparison methods; modelling methods. The study helped identify the main groups of factors that influence the professionalism of a pharmacist. Today, the main ideas behind pharmaceutical education modernisation are related to the use of distance learning methods, the use of business games elements in the process of teaching and learning, active use of creative works and the development in students of strong motivation for learning. The results of our study allow proving the efficiency of introducing new educational technologies. The evolution of education requires the introduction of new educational simulation technologies, taking into account the interests of an individual, and these technologies focus on training personnel capable of engaging in innovative processes.

Keywords: career choice motivations/motives, professional development, pharmacist, pharmaceutical specialist.

INTRODUCTION

Today the Russian system of training pharmaceutical specialists operates amid global changes caused by a number of objective reasons, one of them being the deficit of highly qualified specialists, specialists of a new type whose training caters the increased needs of modern pharmaceutical market. This and many other personnel problems can be solved only with the help of objective and comprehensive monitoring, taking into account a whole set of factors that determine professional career choice.

Making the right choice as regards your future profession requires you to consider and think through this issue to find the motivation to master the profession of your choice. Little life experience or expertise is a significant risk when it comes to career guidance and subsequent choice of your specialisation. The information you get about your future job and the working environment, the contents of professional training needed to be successful at your job allows you to pick and understand the only right area of expertise within the profession you have chosen.

It should be noted that yesterday's school students find it difficult to adapt to a training process at a higher education institution. At the same time, early career guidance is a very important element in personnel training. Against this background, simulation-based learning is in high demand.

A student who is not only the object of targeted educational efforts but also the subject of its own development as an all-round man is the centre of any educational system. Interest in one's own profession, high motivation for mastering the professional competences – this is the key to the future success. An employee's value for its employer, its competitive advantage is identified by a whole range of specific markers. The key characteristics of a competitive sought-after pharmaceutical specialist include high-level professional qualifications, commitment to personal development, ability to think critically, which are revealed in solving professional tasks with various degree of complexity, and fully mature relevant competences. With the dynamically changing market and institutional environment, focused specialisation and emphasis on technological skills might represent a risk factor. A university graduate must be prepared for active professional activity in the sphere of circulation of pharmaceuticals, including their development, manufacturing, production, storage, packaging, transportation, state registration, standardisation and quality control, labelling, advertising, and sales. Communication or interpersonal communication skills as well as conceptual skills that allow forecasting events, planning activity of large groups of people and making responsible decisions based on system-oriented analysis are of great significance. Special attention should be paid to the integrity of thinking. Also, fulfilling the potential requires good health and taking necessary care of it.

Competitiveness of a future specialist is indicative of the quality of the university training and actually, of the university competitiveness. At the same time, the practitioners are not always happy with the level the graduates demonstrate. Among the main drawbacks that today's graduates display weak verbal communication skills, inability to competently consult a visitor, inability to make autonomous decisions when consulting a patient, and to substantiate one's decisions. This suggests that a student has failed to fully develop his communication skills and ability to apply the theoretical knowledge in a specific practical situation.

Personnel staffing of the Russian pharmaceutical sector is a key task within the framework of the pharmaceutical industry's transition to an innovative development model. It is necessary to further improve the system of training, retraining and career enhancement for personnel engaged in the development and production of medicinal products, and this contemplates the implementation of new educational programmes for vocational secondary and higher education reflecting the specific nature of pharmaceuticals, and the assessment of the situation that exists in the industry-specific labour market.

A review of the literature

In the course of a person's professional development, his or her motivation is important both for making career choices and exercising his or her profession. Yevgeny Ilyin identifies three groups of motives related to professional activity: career choice motives/motivations, work life motives and selecting place of work motives. Professional activity is eventually identified by all these motives [1].

In psychology, the term "motivation" acts as an umbrella for many processes and developments which all mean that a living being chooses its behaviour based on the anticipated effect of such behaviour, and manages it in respect of its direction and energy input. The focus of behaviour observed, the beginning and the end of bigger behavioural fragments, resumption after a break, transition to a new behavioural fragment, a conflict between different goals and its resolution – all these pertain to a problem domain that is called "motivation" [2].

Researchers identify several types of motivation, namely the extrinsic and intrinsic motivation in terms of its connection to external circumstances, and positive and negative motivation. Extrinsic motivation is an impulse to perform which is caused by external circumstances and incitements. Intrinsic motivation is a motivation to do a certain type of activity regardless of external circumstances [3].

Career choice is undoubtedly an important part of every person's life, and in making this choice people are guided by various motives. In this country people choose their future profession while they are in their teens. According to the periodisation by L.S. Vygotsky and D.B. Elkonin, at 17 (age of high school graduation), educational and professional activity takes the lead, and this period is characterised as a period of professional and personal self-identification. Also, many young people have not had the chance to try various professions in real life. This is the reason while the choice is not always informed, conscious, and often, young people, already studying at the university, come to realize that the specialisation they have chosen is no longer of interest to them, or that they will not be able to work in this area for this or that reason. Not many of them decide to leave the university and choose another specialisation because they simply cannot afford it for financial reasons or due to being limited in time. Consequently, some young people graduate with a degree in a profession they have no interest for, and they begin their work in that area. Almost any company has employees like that – people who are not happy with what they do, and this affects both the results of their work and their emotional and psychological condition [4, 5, 6].

The choice of a profession in different professional communities is driven by various reasons and motives. Many psychological and sociological studies are dedicated to motivation for choosing a profession of a doctor. According to sociological studies, the choice of a medical profession is determined in the majority of cases by the interest to the profession and the nature of work [7, 8]. The wage rate is becoming a less important motive when choosing a medical profession [9]. According to students, a low wage and a high degree of responsibility might make them decide against enrolling at a medical university [10].

Many domestic and foreign researchers are interested in studying the motivation for choosing a profession of a doctor.

The works of Russian researchers list the following among the factors that determine the choice of a medical profession: the calling, leaning towards medicine as a profession, desire to help people, and the desire to follow one's family traditions. According to the study by A.I. Alekseyev, a specific factor for medical universities that influences the choice of a profession might lie in the fact that a person himself or his relative is suffering from a disease, and this invokes the desire to obtain the relevant education so as to be able to help a family member or himself [11].

According to studies by O.Yu. Sivachenko, D.S. Lyukshina, A.V. Chernykh, S.V. Chusovlyanova and A.R. Zalyayeva, the most popular motives for choosing a medical professional are idealistic and very intimate ones [12, 13, 14, 15, 16], while the desire to extend the family doctor dynasty comes in second place [12].

A study by N.A. Kloktunova et al. mentions a wide range of motives when choosing a medical profession. Comparison of different types of motivation for choosing a medical profession revealed the majority of intrinsic personal and social motives. Intrinsic motivation reveals itself through internal personal interest or acknowledgement of the social significance, and it is connected with the satisfaction one gets from what he is doing. The performance results and being satisfied with what you do depend not just on the prevailing intrinsic motives, but on extrinsic positive motives too. Extrinsic motives are determined by the economic component, status and occupational prestige, by social needs [17, 18, 19, 20, 21].

A.V. Averin identified the following motives that determine a successful future professional activity: motive to benefit others; motive of prestige that influences the level of tolerance, the ability to interact with nurses and orderly, which strengthens the desire to share one's own experience [22].

In foreign studies of motivation for choosing a medical profession, the social relevance and selflessness are not detailed as much as they are in domestic studies. The motivation to help people and communicate with them is more common among young women, while young men, in addition to this reason behind their choice, point to such aspects of their future work as wage and independence. According to publications by other researchers, extrinsic and intrinsic motivations have practically the same influence on the choice of a profession [7, 8, 23].

Foreign sociologists essentially emphasize such notions as career track, professional identity, professional training [3, 9, 24].

Analysing the maturity of exploration of this problem, we can conclude that no detailed case study of individual motives or the students' needs, of the factors that influence the professionalization of students of the Pharmacy faculty was undertaken.

MATERIALS AND METHODS

To analyse the students' individual needs, the motives behind their career choices and to optimize the educational content, forms and methods of teaching and monitoring procedures used in the learning and teaching process, we conducted a survey among 3rd, 4th and 5th year students of intramural, mixed and extramural forms of study at the Educational Department of the Pharmacy Institute of the Sechenov University. The study was based on a random sampling method and featured 164 respondents. In parallel to this, we studied the opinions of graduates (residents) with working experience of 6-36 months, because at this point a young specialist still relies in his work on the knowledge he basically got at the university. The opinions of residents were analysed using continuous sampling method and featured 48 respondents. The study covered 2015-2017, inclusive.

The study hypothesis: identifying and analysing a group of factors (career guidance factors), which, influencing the students' motivation in many directions, shape a pharmacist's professionalism, will allow optimising the learning and teaching process and purposefully using innovative educational technologies that can help heighten the interest to the chosen profession in the course of learning.

RESULTS AND DISCUSSION

Millennials are not always capable of choosing their future career in an adequate and balanced way. At the same time, a conscious career choice influences a person's interest and motivation in mastering the necessary knowledge, skills, competences, and expertise. Traditionally, the choice of the future profession is influenced by the level of employability and advice that school teachers give their students, the interest they have in their own subject which they try to pass on to their students. At the same time, the profession of a pharmacist has its own specific nature and requires future pharmacists to possess many personal qualities including punctuality, exactitude, and ethics.

We have identified the most common career choice motivations and included them in a questionnaire for students and residents. Survey findings are given in table 1.

Table 1. Career choice motives in medical students and residents (%).

Career choice motivation	Extramural form of study	Mixed form of study	Intramural form of study			Residents
			3 year	4 year	5 year	
Prestige	63	33	43	62	74	65
High wage	26	19	26	29	37	10
Interesting work	47	43	61	51	59	60
Availability of training	36	19	17	11	22	6
Example of the parents	5	14	13	8	11	21
Example of friends and acquaintances	32	5	4	13	2	2
Advice from parents	36	33	35	35	17	13
Other	--	2	9	8	7	4

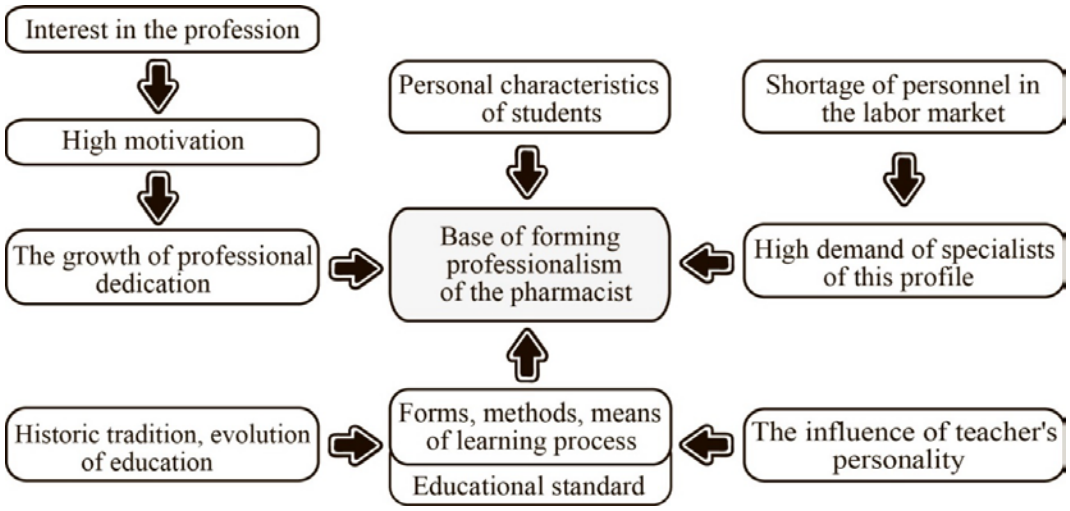

Figure 1. Conceptual model of developing professionalism in a pharmacist.

The most popular career choice motivations were occupational prestige and an interesting job. At the same time, over two thirds of respondents noted the motivational role of their close relatives, which proves that family professional traditions influence career choices. The advice given by the parents is also important as it is related to the promising outlook and perspectivity of a profession and ample opportunities in the future. It should be noted that the share of respondents among residents with a pharmacist or a doctor in the family is 52%, which reveals the big role a dynasty plays in the motivation for further postgraduate studies and desire to further develop a career. The smallest share of respondents with dynastic connections was among the students of the extramural form of study (21%).

However, the career choice is just the first step in training a specialist. The teaching staff plays a big role in the development of a future specialist. Their qualities, their engagement in the training process and ability to convey the information to their audience determine the level of learning material digestion comprehension and the interest of the students in a certain subject. In this connection, we analysed the main qualities of university professors from the point of view of students and residents. The role of a university professor as a personality is great, and it's obvious that a respected professor should possess a whole set of qualities. Our studies showed that the students can't name just one priority quality. As a rule, their assessments are based not on a single quality but on a whole set of qualities, including the depth of knowledge, intelligence, patience, sense of humour, fairness and pedagogical excellence. In choosing answers to the question on the most important qualities a professor should possess, the students most frequently named the depth of knowledge (77-85%), pedagogical excellence (63-80%), fairness (48-79%). Unlike the students, the residents were more specific in describing their «beloved» academic department, and this proves their conscious and informed choice of specialisation at a specific department. The priority qualities they want to see in a professor include pedagogical excellence (79%) and the depth of knowledge (77%). Other qualities are less important for them.

It is known that interaction between the actors in the learning/teaching process is important. The study findings show that the majority of students (77-84%) prefer integrated teaching methods and also active learning when a student gets the leading role (14-26%). And only 2-5% of the respondents preferred passive learning methods. The polling results show that the students take a serious approach to their studies and they possess certain practical experience which allows them to actively chose subjects and areas of learning.

The survey results demonstrate that the students lean toward active learning; the majority of them chose seminars, free discussions and business games. About 40% of respondents said they would choose a lecture as a traditional form of learning, and this attests to the fact that it is possible for them to get the same information from alternative sources. Students showed greater interest in business games since they allow them to form the basis for their professional specialisation. At the same time, individual work sparks less enthusiasm since it requires better self-organisation and a certain degree of will power.

The existing system of polyfunctional control is intertwined with process customization at all stages of learning and with the choice of monitoring forms and techniques in accordance with a student's personal skills, interests and performance. Professional training of a specialist focuses on the end-of-course assessment, and that provides the student with a systematic activity during the semester and a chance to comprehend the entire course [25].

The performance and assessment indicators can include indicators that reflect the attitude to one's future profession. In the process of training, this attitude might change and such change is not always for the better. This can be due to personal qualities or the influence of the information a student obtained in the course of training. If we look at the students of extramural form of study with work experience in this area, the attitude hasn't changed in 53% of respondents, but for the majority of those surveyed these changes are significant. There were positive changes among students from the mixed form of study (intra/extramural) (57%), residents (48%), 3rd, 4th and 5th year students (65%, 56%, 63%, respectively). At the same time, from 5% to 43% of those surveyed noted they were disappointed with their choice. The biggest percentage (43%) was among the mixed form of study students.

The studies undertaken and the results of the content analysis of publications on the problem allowed developing a system of factors that have been reflected in the conceptual model of developing professionalism in a pharmacist (Figure 1).

The career interest is determined by the fact that pharmaceutical specialists are in high demand on the labour market and they can apply their knowledge and expertise in many related areas. However, maintaining this interest depends both on the student's personal qualities, his capacity for personal fulfilment and self-improvement, and on the educator's personality. Proceeding from the social significance and humanitarian nature that the profession of a pharmacist has today, it is not enough for a future specialist to possess just the professional knowledge and skills. A pharmacist today is not just a specialist who has mastered special subjects but also a person with a certain set of professionally critical qualities. This necessitates the development in students of active thinking and such personal qualities as spirituality, team spirit, and holistic thinking.

Training personnel in the current context should focus on developing innovative thinking in students. A big role here goes to early career guidance which provides for the students' involvement in a quasi-professional activity that mimics elements of their future career in the course of such training. The use of different simulation methods, including simulation play patterning, allows bringing the process of learning as close to the actual work of different branches of the drug circulation sector as possible and developing creative innovative thinking in students.

To this end, the academic department introduced a new subject in 2017 – Drug circulation in Russia and in the world – which aims not only to provide the first-year students with an insight into the pharmaceutical sector of the economy and also to analyse the professional environment from the perspective of the system approach. Modern education methods of active learning are being used during lectures that allow guiding the new students in terms of choosing their future specialisation and showing them where their creativity can be put to use while still at the university. Pharma industry today is not just about pharmacies and warehouses, it is also about research laboratories, clinical and pre-clinical trials, marketing authorisation, etc. A more informed insight into the future profession allows making a conscious choice in terms of specialisation and motivates students to strive for self-improvement and self-esteem; it also allows a student to set the development track for his professional competence.

Educational plan at the Pharmaceutical Organisation and Economics department lines around professional development, ensuring a single track from year 1 to senior years. The process of professional development is based on a "simple-to-complex" principle, with complexity picking up incrementally. Simple abstract simulation models used for the first-year students gradually get more complex, more detailed and as close to the practical activity as possible. The use of various teaching methods and patterns, absence of monotony, and programmes tailored to suit individual needs and interests heighten the interest and motivation among the students. For example, first-year students begin their studies with checking and adjusting theory, studying legal documents, and then, in the course of learning, active methods are being added, including mini-case studies, case problems and business games. Simulating a fragment of activity, in simplistic terms and without minor details, allows developing a pharmacist's activity model in a specific sphere. In this context, simulation play patterns – business mini games – are relevant. A business game, Creating a Medicinal Product, was developed and implemented for the first-year students. In this game, an object of simulation is a company that decides to commercialize a new medicinal product and launches a project for its development. The company's structure features the following virtual laboratories, with students as their "employees":

1. Laboratory for the synthesis of bioactive compounds. Mission – to develop a generic medicinal product (MP) based on known molecules to treat a certain disease;
2. Technological laboratory. Mission – developing a pharmaceutical form for the new MP, producing trial batches of substances for subsequent research;
3. Analytical laboratory. Mission – standardisation and quality control at all stages of the MP development;
4. Administrative group. Mission – developing an innovative programme, monitoring its implementation, managing innovative processes.

The students of group are divided into "labs" and an "administrative group", 3-5 students in each, based on voluntary principle, meaning that the students choose for themselves which group they want to join. Each small group gets a list of tasks it needs to complete within one week. Tasks for each «lab» include retrieval of the relevant information and its presentation. During the play stage, the students make reports on the topic they have chosen and formulate the main tasks and functions of the laboratory. For example, "employees" of the bioactive compound synthesis lab work on presentations on the history of discovering the known medicinal products (taking 2-3 products to illustrate). The emphasis is placed on the algorithm for developing and screening bioactive compounds for the subsequent study of their pharmacotherapeutic capacity. Students from the technological laboratory prepare reports and presentations on the development and qualities of different pharmaceutical forms, demonstrating their samples. Analytical "lab" gives a detailed overview of the history and evolution of the State Pharmacopeia, its structure and content. The Administrative group prepares presentations on the famous laboratories or companies engaging in research and development (R&D) in the area of Medicinal Product development in Russia and abroad. At the final stage the groups engage in a joint discussion, and the professor sums up the results of their work in small groups. The students take an active part in all stages of the game and voice their preferences as regards the choice of tasks to be performed. Fragments of simulation business games are included in other training subjects in such a way so as to give the students an insight into the main areas of the future professional activity of pharmaceutical specialists as early as in the first year. Today, this sphere is not limited to just working in a pharmacy, as many first-year students might falsely assume. It's much wider and more interesting. In such a way the students learn the basics of their future profession while playing, and outline future career path.

While for the first year active learning forms and methods are used for obtaining the basic knowledge, for senior years they are used to develop skills. The key task in teaching senior students is to come as close to resolving specific job tasks as possible and prepare them for a successful passing of primary accreditation once they graduate with a university degree.

In this connection, the maximum effect comes from on-the-job training at pharmacies. However, the tendency toward reducing the term of such training creates a significant risk zone for the development of professional skills and professional organisational and managerial work experience of future pharmacists.

A way out of this situation that allows preserving the professional development path is the use of play technologies in the training process. These technologies are especially relevant for senior students because they have already identified their professional and cognitive needs and, therefore, are more receptive to everything that is connected with their future profession; cognitive activity is being reorganized in the course of training, and this makes professional learning and skills development easier and more effective. The department has developed and uses on a regular basis role-playing business games that mimic the most common routine situations and emergencies occurring in everyday work of the pharmacy: Pharmaceutical examination of prescriptions, Conflict with a pharmacy visitor, Acceptance of goods at a pharmacy, Pharmaceutical management, Behaviour in conflict situations, and other. The students choose the «roles» themselves (a visitor, a pharmacist, department supervisor, pharmacy director, expert) and change them occasionally. A university professor makes a note of how the roles are distributed, which gives him an opportunity to not only engage the students in terms of certain business qualities but also see how social and psychological focuses are actually arranged within the group, what friendly and business preferences the group participants display, etc. The next stage is a specific situation when the students start imitating their professional activity. It is extremely important what sentiments accompany this activity, how the problem is perceived from the inside, how does interaction with other people go. Of prime importance is the fact that some of the task flows are simulated by the students themselves as concerns legal, professional, moral and ethical, and deontological limitations.

In planning a business game, attention should be paid to upbringing as one of the most important components of learning. The need for a pharmacist's moral and psychological competence is determined by the fact that the resolution of professional challenges is actually woven into the system of moral relations which cannot be compromised in order to attain professional goals. The list of tasks a student needs to solve include not only the professional activity but also practicing emotional self-control, displaying creative initiative, ability to substantiate one's actions, compare one's own interests with those of the partners.

The final stage features an intergroup discussion and post-game analysis. The experts analyse the correct and incorrect decisions and actions of all game players. Each player can explain his or her viewpoint and suggest their solution of choice. A specially developed assessment scale is used to interpret the results.

To assess the level of reception by students of active learning forms and possibilities that open up to them in the course of business game-based training, a questionnaire survey was undertaken among residents and senior students. The survey results showed that all the respondents were positive about active learning in the form of business games. The majority noted that the use of such active learning forms not only develops technological skills but also allows obtaining communication and conceptual experience, organises and scales up the students' activity contributing to the development of professional thinking, displaying criticism, striving for self-esteem, conclusiveness, ability to engage in a professional discussion, etc. The study revealed that learning in the form of "professional business games" helps incentivise self-education and cognitive activity in students, thus allowing improving not only the efficiency of professional development but also the entire learning process.

CONCLUSIONS

Today's realities necessitate the search for innovative ideas to modernise pharmaceutical education, which are related to the remote supervised method (ReSuMe), adding business game elements to the learning and teaching process, actively using creative forms of work, developing a strong motivation in students to learn, and projecting a professional development path. The results of the studies we undertook prove that the new educational technologies are ready to be implemented. The contemporary paradigm of training pharmaceutical specialists should include:

- focus on a comprehensive approach in training specialists with due regard to market requirements;
- encouraging professional determination;
- taking into account moral and ethical aspects in the course of learning and teaching, focusing on consumer's interests;
- using traditional and modern, innovative technologies in the process of learning and teaching;
- placing emphasis on developing in students conceptual and communicative skills and ability to work in a team;
- forming a proactive attitude in students;
- actively engaging students in research, developing their creative skills;
- developing interdisciplinary connections.

To attain the goal of this study – find mechanisms and algorithms to manage the process of professional development – we need to identify, analyse and monitor on a continuing basis the direction and impact of factors that represent career guidance indicators. Introducing innovative methods of teaching and learning, with due regard to the indicators identified, along the entire track of pharmaceutical specialist training allows the process of professional development to transform from being multidirectional to being actively managed, structured and task-oriented.

At the same time, we should not forget that focused specialisation is a risk factor. Today's market is very dynamic, and professions that are popular today might lose their relevance tomorrow. Therefore, expanding the interests of the students, self-development, innovative mind are integral to being professionally successful in the future.

Thus, the evolution of education requires introducing new simulation and learning technologies that take into account personal interests, which are focused on training a new generation of specialists and researchers capable of engaging in innovative processes of transforming the pharmaceutical sector of the economy.

REFERENCES

1. Ilyin, E. P., *Motivation and Motives*, Peter, Saint Petersburg 2011.
2. Heckhausen, X., *Motivation and Activity*, Peter, Saint Petersburg 2003.
3. Al-Fouzan, R., Al-Ajlan, S., Marwan, Y., Al-Saleh, M., Factors affecting future specialty choice among medical students in Kuwait, *Medical Education Online*, 2012, *17*.
4. Bhat, S., D'souza, L., Fernandez, J., Factors Influencing the Career Choices of Medical Graduates, *Journal of Graduate Medical Education*, 2011, *3(3)*, 367-371.
5. Harris, M. G., Gravel, P. H., Young, J. R., Factors influencing the choice of specialty of Australian medical graduates, *Medical Journal Australia*, 2005, *183(6)*, 295-300.
6. Harris, J. E., Lopez-Valcarcel, B. G., Ortun, V., Barber, P., Specialty choice in times of economic crisis: a cross-sectional survey of Spanish medical students, *BMJ Open*, 2013, *3(2)*.
7. Lefevre, J. H., Roupert, M., Kerneis, S., Karila, L., Career choices of medical students: a national survey of 1780 students, *Medical Education*, 2010, *44(6)*, 231–236.
8. Newton, D. A., Grayson, M. S., Thompson, L. F., The variable influence of lifestyle and income on medical students' career specialty choices: data from two US medical schools, 1998–2004, *Acad. Med*, 2005, *80 (9)*, 809-814.
9. Weissman, Ch., Zisk-Rony, R. Y., Schroeder, J. E., Weiss, Y. G., Avidan, A., Elchalal, U., Tandeter, H., Medical specialty

considerations by medical students early in their clinical experience, *Israel Journal of Health Policy Research*, 2012, *1*.
10. Nauta, A., Vianen, A., Heijden, B., Dam, K., Wilemsen, M., Understanding the factors that promote employability orientation: The impact of employability culture, career satisfaction and role breadth self-efficacy, *Journal of Occupational and Organizational Psychology*, 2009, *82*, 233-251.
11. Klimov, E. A., *Professional psychology, Institute of practical psychology*, Moscow 1996.
12. Sivachenko, O. Y., Motivation of the students NSMU when choosing a career, *Journal of Siberian Medical Sciences*, 2013, *3*, 4.
13. Lyukshina, D. S., Petrova, D. I., Attitude of medical students to professional activity, *Pacific medical journal*, 2016, *61(3)*, 96-98.
14. Chernykh, A.V, Kosyanchuk, N. M., Dynamics of educational and professional motivation of medical students, *Pedagogical skills and pedagogical technologies*, 2015, *3(5)*, 123-125.
15. Chusovlyanova, S. V., Levchuk, A. K., Problem of the formation of values in students of medical university in the process of professionalization, *Volgograd scientific medical journal*, 2010, *1(25)*, 15-19.
16. Zalyaev, A. R., Social background and professional strategy of the Russian medical student (the results of an empirical study), *Vestnik of Tomsk State University*, 2017, *39*, 204-215.
17. Bugaeva, I. O., Kloktunova, N. A., Kuligin, A.V., Magomedov, M. S., Zakaev, G. N., Soloviev, V. A., Stereotypes of medical professions (review), *Saratov scientific medical journal*, 2016, *12(4)*, 602-605.
18. Kloktunova, N. A., Dynamics of a determining factor in choosing the medical profession by medical students, *Saratov scientific medical journal*, 2013, *9(2)*, 333-337.
19. Kloktunova, N. A., Study of factors influencing career choices of students in the field of medical education: international practice, *Theory and practice of social development*, 2013, *9*, 83-86.
20. Kloktunova, N. A., Andrianova, E. A., Akimova, N. A., Medvedev, E. N., Professionalization of medical education: problems and prospects, Saratov state medical University, Saratov 2014.
21. Alenin, P. N., Andriyanova, E. A., Kloktunova, N. A., Akimova, N. A., Basic foundation of the professionalization of physiology in the experts, Saratov journal of medical scientific research, 2016, 12(4), 611-616.
22. Fitmova, A. A., Typology of professional motivation of future doctors on the basis of cluster analysis, *Izvestiya RGPU by A. I. Herzen*, 2011, *129*.
23. Scarbecz, M. A., Ross, J. A., Gender Differences in First-Year Dental Students' Motivation to Attend Dental School, *M.S. Journal of Dental Education*, 2002, *66*, 956.
24. Ko, H. H., Lee, T. K., Leung, Y., Fleming, B., Vikis, E., Yoshida, E. M., Factors influencing career choices made by medical students, residents and practing physicians, *BC Medical Journal*, 2007, *49(9)*, 482-489.
25. Galustyan, O. V., Technology of realization of multifunctional control system of professional training of modern specialist, *Vestnik Voronezhskogo Gosudarstvennogo Universiteta*, 2017, *4*, 36-42.