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ARTYKUŁ REDAKCYJNY / EDITORIAL ARTICLE
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DEVELOPMENT OF MOTIVATION TOWARDS EDUCATION IN MEDICAL STUDENTS

ROZWÓJ MOTYWACJI DO NAUKI U STUDENTÓW MEDYCYNY

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ABSTRACT

Introduction: The quality of professional medical training is a relevant issue for clinical and educational setting due to modernization and reform processes at the present stage of the society's development. The formation of the future doctors' interest in professional activities mostly depends on the implementation of pedagogical conditions, aimed at developing the positive motivation towards education.

The aim: The authors aim to examine the concept of motivation and define its role in the process of professional training of future doctors.

Materials and methods. A questionnaire survey was conducted for students of the first year of study (medical and dental faculties) using the methods of studying the profession's attractiveness and its factors (by V. Yadov, modification by I. Kuzmina, A. Rean) and studying the orientation towards the acquisition of knowledge via the test by E. Ilyin and N. Kurdyakova.

Results: Based on the analysis of literary sources, the main factors that influence the interest of students in education were identified and the pedagogical conditions for the formation of positive motivation for training activity in the educational setting of a higher medical educational institution were highlighted. It was found that most students prefer social motives when choosing a profession, and almost 10% of the subjects show a low level of focus on learning in the process of education. The authors provided practical recommendations on the formation of positive motivation for students' training when studying humanities at a medical university with the help of multimedia teaching materials, inclusion of students in the self-directed research activity, etc.

Conclusions: On the basis of generalized experience of educators and psychologists, as well as our own studies, we consider that the following pedagogical conditions form the positive motivation towards education in medical students of the first year of study: effective use of modern multimedia specialized tools (electronic journals, specialized web-sites); students' engagement in the self-directed research activity; use of modern specialized software for solving professional tasks. Such techniques enable the integration of knowledge, skills and abilities in several subjects, prepare students for academic subjects in the second year of study and maximally approximate the training objectives to future professional activities.

KEY WORDS: motivation, motive, future doctors, professional training, higher medical education

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INTRODUCTION

Care for the health of population is a priority task of the state, which envisages the improvement of the quality of training, along with comprehensive development of medical sector. This process is provided by reviewing the existing methods, forms and means of teaching at a medical university, which is closely linked to the implementation of the person-oriented approach in the educational process. The quality of professional medical training is a topical issue for clinical and educational setting, due to modernization and reform processes at the present stage of the society's development. The

process of professional training of medical students should now be advanced to a qualitatively new level, the content of the educational process should be directed towards the formation of the future doctor's self-awareness, initiative, and professional maturity. The main source of professionalization of future doctors is the educational process in which they act as active subjects of learning [1]. Pedagogical conditions act as a combination of factors providing regulation, interaction of objects and phenomena of the pedagogical process to achieve the objectives, improve the interpersonal relations of participants in the pedagogical process to solve specific didactic

tasks, promote the activation of educational and cognitive activity of future specialists, their autonomy, initiative and professional interest. The formation of the future doctors' interest in professional activities mostly depends on the implementation of a pedagogical condition, aimed at forming a positive motivation to study. In our previous studies, we have already discussed the ways of improving the learning content and methods for teaching humanities at a medical university [2; 3; 4; 5; 6]. The present paper aims to analyze the concept of motivation in psychology and education, and to define its role in the process of professional training of future doctors.

LITERATURE REVIEW

The analysis of scientific sources on the above-mentioned problem shows that motivation to study at a higher medical institution is one of the most important problems of doctors' professional training, but it is not sufficiently studied today. Priority bases for considering this problem may be the concepts of O.O. Yakovleva, K.V. Pivtorak and I.V. Fedzhaha [7; 8], who distinguish the main problems in forming the future doctor's personality. The study delineates determinants for personal growth of a future professional at the medical university: conceptual unity and continuity of the content, forms and methods of teaching; problem-oriented, developing character of teaching, connection between theory and practice; openness of educational process and content of educational material to innovations; individualization and differentiation of the educational process; teachers' cooperation with students in the educational process. V.B. Drindak, N.D. Yakovychuk, A.O. Mikheev [9] note that the greatest interest in the subject of study is not stimulated by forceful compulsion or fear due to poor assessments, but a decent example of a professional and the desire to follow the best features of the chosen "ideal". V.V. Minukhin and co-authors [10] state that the process of development of abilities, qualities and skills takes place in the educational space of higher educational institutions systematically and consistently, by involving students in research work and participation in the scientific, practical and theoretical conferences.

Taking into account the considerable number of scientists' points of view, on the basis of practical expediency and theoretical generalization of the above-mentioned aspects, we consider that motivation to study at a higher medical institution is determined by a number of factors specific to this activity. The formation of future doctors' interest in professional activities depends mostly on the implementation of the following conditions: unity of content, forms and methods of learning, openness of teaching material to innovation, involvement of students in research activities, cooperation of students with teachers, unity of theory and practice.

THE AIM

The authors aim to examine the concept of motivation and define its role in the process of professional training of future doctors.

MATERIALS AND METHODS

We analyzed the academic performance of 109 students of the first year of study (medical and dental faculties of Ukrainian Medical Stomatological Academy) at the Department of Medical Informatics, Medical and Biological Physics when studying medical and biological physics. The peculiarity of the Department of Medical Informatics, Medical and Biological Physics consists in the fact that the subject is the basis for the formation of the future doctor's professional competence; it is the initial stage in the study of medical and biological subjects, in particular physiology. During the research, we conducted a questionnaire survey via the methodology for studying the profession's attractiveness [11] (by V. Yadov, modification by I. Kuzmina, A. Rean). The attractiveness of a profession is determined by 11 factors placed in columns A and B. Respondents mark the factors that attract and do not attract them in the chosen profession. The processing of the survey results to study the profession's attractiveness involves calculation of the coefficient of significance (Cs) and the ratio of the number of respondents who chose this factor in column A (n) to the number of respondents who selected this factor in column B (m). Consideration of both coefficients is a necessary methodological aspect in interpreting the results. A high coefficient of significance (close to 1) indicates high significance of this factor in the sample. We also conducted research on the orientation to gaining knowledge using the test by E. Ilyin, N. Kurdyakova. The purpose of the test is to identify the level of expressiveness of students' motivation for acquiring knowledge. On the basis of generalization of the obtained results and their qualitative analysis, a conclusion is made about the degree of expressiveness of students' motivation to acquire knowledge and the peculiarities of its manifestation in the process of learning. Consequently, recommendations were given to ensure the conditions for the development of internal motivation to study. The test provides answers to 12 questions, for each of which respondents will receive 1 point. Statistical analysis of the results of the study (determination of the Spearman rank correlation coefficient) was performed using the Microsoft Office MS Excel table editor.

RESULTS

The distribution of research results by the method of studying the factors of the profession's attractiveness is given in Table I.

As can be seen from Table 1, 75.2% of respondents consider the profession of a doctor as one of the most important in the society, 58.7% of students chose the profession of a doctor as an opportunity for self-improvement, and 85.3% – for the opportunity to achieve social recognition and respect. High salary attracts 46.8% of respondents, 19.3% of students who participated in the study stated that a short working day is the attraction factor of the chosen profession.

As can be seen from the results of the study via the method of studying the profession's attractiveness, students are motivated predominantly by social factors (answers

Table I. Distribution of research results by the method of studying the factors of the profession's attractiveness (by V. Yadov, modification by I. Kuzmina, A. Rean)

Indicators	Factors										
	1	2	3	4	5	6	7	8	9	10	11
p	16	30	26	43	23	36	27	19	36	31	13
n	82	6	56	48	51	9	80	85	52	6	93
m	11	73	27	18	35	64	2	5	21	72	3
Cs	0.651	-0.615	0.266	0.275	0.147	-0.505	0.716	0.734	0.284	-0.606	0.826

Table II. Distribution of research results on orientation to acquiring knowledge (by E. Ilyin, N. Kurdyakova)

The amount of points	Distribution of subjects	
	Number	% of the total number
0-3	10	9.18
4-6	13	11.93
7-9	58	53.21
10-12	28	25.68
Total	109	100

To exclude random answers to test questions, the nonparametric Spearman correlation coefficient was used. As a result of the study on knowledge acquisition (by E. Ilyin, N. Kurdyakova's test), we observed a close correlation between the students' answers to questions that indicate the motivation for acquiring knowledge ("a" to questions 1-6, 8-11, and "b" to question 7, 12) (0.7, 0.95).

in column A to question 11 and answers in column B to questions 6, 10). This group of motives reflects the social significance of learning, in particular, self-affirmation in the team, self-improvement, self-education, competition for the depth of knowledge on the subject, social prestige and identification, communication, etc. Professional motives reflecting the significance of learning activities for occupation prevail in 75.2% of respondents (answers in column A to the first question of the test).

According to the research methodology on orientation to acquiring knowledge (test by E. Ilyin, N. Kurdyakova), we have the following distribution of results (Table II). From the table, one can observe that only 25.68% of respondents have a high level of motivation to acquire knowledge, while 9.18% of students present with low motivation.

DISCUSSION

In our opinion, it is highly important to form the positive motivation for learning activities to ensure successful professional training of future doctors. For the holistic formation of motivation in future doctors, this process should have a systematic character [1]. Interest is an important element in the development of motivation (Fig. 1), and it is divided by the scholars into emotional, intellectual and professionally-cognitive components. Emotional interest arises when particular attention is drawn to something that causes positive emotions and is pleasant. Intellectual interest is associated with knowledge of the surrounding world and intellectual activity of a person.

Professionally-cognitive interest is defined as an integrated form of personality, which is expressed in the constant desire for comprehension of new knowledge in the future profession and as a manifestation of cognitive needs that ensure professional orientation of the individual. Consequently, the essence of professionally-cognitive interest consists in self-directed acquisition of the necessary knowledge and their use for solving professionally significant tasks.

In our opinion, the formation of professionally-cognitive interest in learning takes place due to diversification of educational activities, involvement of future doctors in self-directed research projects, and solving the professional problems [12]. Thus, during practical sessions at medical universities it is recommended using online resources, such as *PubMed Central Database* (<https://www.ncbi.nlm.nih.gov/pubmed/>) [13; 14; 15], etc. The use of these resources makes it possible to expand the field of opportunities to form motivation for learning through new activities and new opportunities for implementation of one's own competencies, which ensures their transition to the new quality (practical direction). The feasibility to use the abovementioned resources is conditioned by the need to find information when preparing for practical classes, work on individual tasks. While studying the topic "Medical equipment. Devices for taking the readings of biomedical information", we recommend to demonstrate multimedia images and videos of clinical case on cardiac catheterization (online journal *The New England Journal of Medicine* by Dr. Enrico Serratto of Infermi Rivoli and

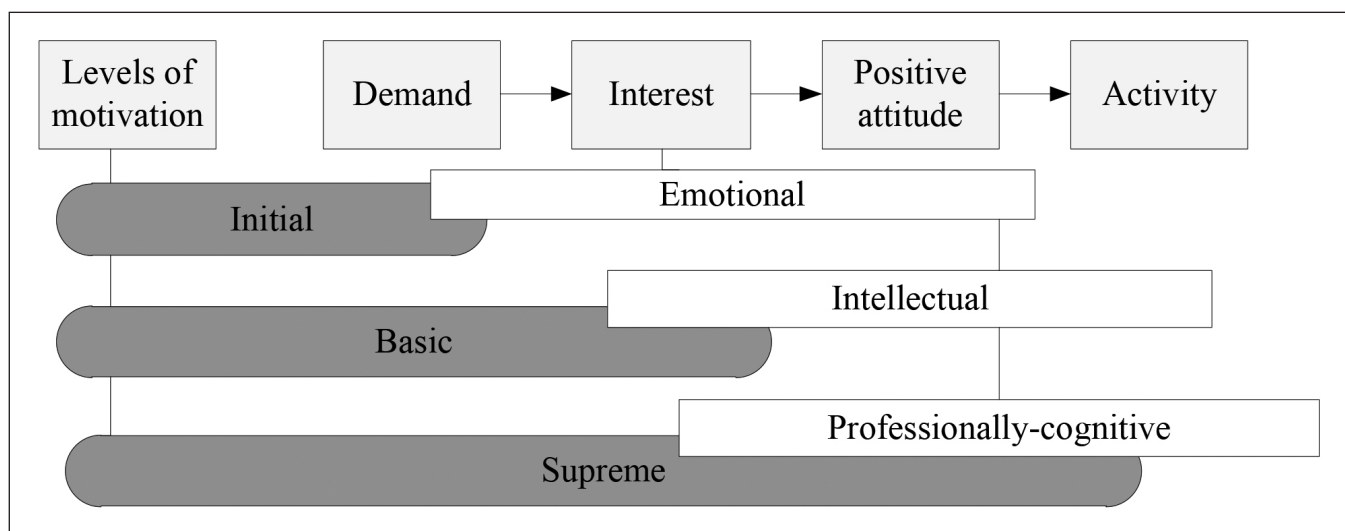


Fig. 1. Schematic representation of the process of motivation development.

San Luigi Gonzaga University Hospital). Such materials help to elucidate the complex teaching material, to orientate students in the modern diagnostic and therapeutic techniques, to prepare for the study of clinical subjects [16; 17]. When studying the topic “X-rays”, in our opinion, it is appropriate to draw students’ attention to the modern method of diagnostics – computed tomography and its capacity as exemplified by multimedia images and videos, including the detection of mobile aortic blood clots in patients (described in detail by Dr. Willy Sallinenom, Helsinki University Hospital at *New England Journal of Medicine* website).

An important aspect of students’ learning in the context of studying a particular discipline is individual work with educational material [18]. In addition to preparing reports and abstracts, we offer students the opportunity to prepare educational demonstration materials. Under the teacher’s supervision, students work on the creation of posters with structural and logical schemes, tables, images that briefly reflect the key points of the topic. Hence, for dental students when studying the topic “X-rays”, it is necessary to combine the basic theoretical information on the application of thermography in dentistry and clinical interpretation of the results of this study. Thus, students independently search for relevant information, organize the search results, illustrate this material with images from research articles, report on their work, explaining the nature of physical phenomena in their clinical use [19; 20].

Studying the topic “Fundamentals of Higher Mathematics and Biological Physics”, students should master the methodology of finding the function areas, the rules of differentiation, integration, solving differential equations, and find the probability of events in medical problems. At practical sessions on this topic we suggest students to get acquainted with the main features of Maple 10 computing environment. The software allows students to optimize the process of mathematical calculations during the preparation for practical classes and self-directed work [21; 22; 23].

CONCLUSIONS

After analyzing the problem of motivation to study during practical classes in medical and biological physics, we observed that there are numerous opportunities for increasing the students’ motivation to study. They are not universal and require consideration of the content, means and methods of presenting the educational material. On the basis of generalized experience of educators and psychologists, as well as our own studies, we consider that the following pedagogical conditions form the positive motivation towards education in medical students of the first year of study: effective use of modern multimedia specialized tools (electronic journals, specialized web-sites); students’ engagement in the self-directed research activity; use of modern specialized software for solving professional tasks. Such techniques enable the integration of knowledge, skills and abilities in several subjects, prepare students for academic subjects in the second year of study and maximally approximate the training objectives to future professional activities.

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