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A Comparative Analysis of Changes in the Learning Motivation of Russian and Foreign Medical Students during the COVID-19 Pandemic

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Abstract

This paper tests the hypothesis that the structure of the learning motivation of Russian and foreign medical students have undergone changes during the COVID-19 pandemic. The authors explored the learning motives of students studying the same medical specialty at the same university. The comparative analysis of changes in the principal learning motives (professional, cognitive, developmental, creative self-actualisation, communicative, social, avoidance- and prestige-driven) from February 2019 to June 2021 was made using the assessment of students' learning motivation developed by Rean and Yakunin, as modified by Badmaeva. SPSS Statistics 22.0 was used for statistical analysis. The results confirmed the research hypothesis: the structure and manifestation of medical students' learning motives have undergone changes during the COVID-19 pandemic. Before the pandemic, most of the learning motives of Russian and foreign medical students show a high level, with primarily professional motives, which evidences a professional orientation and a conscious choice of the profession. However, such important motives as cognitive, developmental and creative self-actualisation are significantly less expressed than professional ones. During the COVID-19 pandemic, there was a much higher manifestation of professional motives in Russian medical students. From the authors' point of view, this can be explained by extended practice with patients while there was an increase in creative self-actualisation and a decrease in communicative and social motives. Foreign medical students show a decrease in prestige-driven motives and some decrease in social motives. The obtained results open up prospects for improving medical education and for developing the personal and professional potential of Russian and foreign medical students.

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1. Introduction

Confronting the COVID-19 pandemic, which is affecting all spheres of society, shows that crisis situations can be overcome only jointly and based on the humanistic principles (United Nations, 2020; Akimov et al., 2020). In this regard, the role of education is being revised and concrete steps are being taken to develop the potential of individuals and to create a basis for moving towards a future filled with hope. In particular, this involves the evolution of learning principles, the modernisation of the concept of lifelong learning, and the digitalisation of education based on flexible learning methods, digital technologies and updated curricula (Guterres, 2017; Pluzhnikova, 2021).

By adopting the dignity of life as a universal humanistic principle, we create a framework for realising the true purpose of education—to help a person in answering the fundamental questions on the meaning and purpose of human existence: what a person should represent as an individual and in what way they should live (Toynbee, Ikeda, 1976; Sadovnichiy, Ikeda, 2013). This reference point is particularly important for medical education. It is accepted today that a medical graduate should have a professional schooling in his specialty, communication abilities and emotional intelligence (Vetluzhskaya et al., 2019). From the authors' point of view, no less important is the medical graduate's moral consciousness and responsible attitude to the society. This has been confirmed by a number of studies. The studies devoted to the problems of professional burnout, the symptoms of medical workers' emotional ill-being and distress during the COVID-19 pandemic testify that mindfulness and responsibility and the most important psychological predictors of medical workers' viability (Petrikov et al., 2020).

A common point of view is that overcoming various difficulties caused by the pandemic, including separation from fellow students, the use of new forms of learning, and the disruption of plans, requires students to make independent decisions, manifestation of their creative potential (Dijk-Groeneboer, 2020).

During the pandemic, medical students have been widely involved in the medical care of patients, including those with COVID-19. This professional experience had a transformational impact on the professional identity and learning motivation of medical students, which has been observed in a number of studies (Tempski et al., 2000; Lovri' et al., 2020).

Learning motivation in different contexts has been the subject of extensive scientific analysis which helped to develop a typology of learning motivation, to study the formation and development of learning motivation with regard to students' age, to undertake experimental testing of methods and the psychological and pedagogical conditions for actualising learning motivation (Ilyin, 2011; Nikitskaya et al., 2018). However, according to Kusrkar et al., today's student training curricula are based on cognitive approaches rather than on motivation theory and they conclude that learning motivation has been underestimated (Kusrkar et al., 2012).

Distance learning during the pandemic has intensified the study of student motivation in the new educational environment. However, the research has been more about identifying the risks of the digitalisation of education, and technical, academic and emotional support for participants in the learning process (Frolova et al., 2021; Anstey et al., 2020; Al-Okaily et al., 2020).

A number of authors consider motivation to be a partially compensating factor for insufficiently developed knowledge, skills and capacities. Thus, motivation has a leading role in learning success (Lutskova, Rusina, 2012). From this point of view, it seems reasonable to define learning motivation with regard to the learning and professional goals which a student strives to achieve, along with the internal activity of their character; high learning motivation is expressed through a student's acceptance of the learning goals and objectives as personally significant and necessary.

In methodological terms, according to Maslow's theory of motivation and need, it is important to consider the constructive and destructive processes that coexist in the inner world of any individual. However, the presence of a certain emotional environment favours continually increased motivation (Maslow, 2013).

In this context, Murray's study is specifically notable. He drew attention to the following basic needs amongst the whole spectrum of behaviour determinants: achievement, domination, independence, and affiliation (Hall, Lindsay, 2008).

Many studies investigate the psychological and pedagogical conditions for increasing the learning motivation of students in specific professions or academic disciplines (Zhukov et al., 2013; Zubkov et al., 2019; Makarov et al., 2018; Pelaccia, Viau, 2017).

Many researchers consider adolescence as the main stage of the development of professional identity, which determines the subsequent degree of professional performance, burnout and-or satisfaction (Bolotova, Molchanova et al., 2005).

A number of studies investigate the relations between motivation, the axiological sphere of a personality, and medical students' attitudes towards professional development and self-development (Makarova, Gorbunova, 2019).

A hierarchy of major motives for getting a degree was revealed in pharmaceutical students (in descending order): gaining knowledge, mastering the profession, and receiving a degree. In addition, a difference in the learning motives of males and females, and a distinction depending on performance in study groups was revealed (Antipova, 2017).

A study of the learning motives and the motives for getting higher education revealed some changes in the dominant learning motives in the 1st and 5th year medical students (Gavrilova, Shamray, 2017).

A study of the motivation of first-year medical students showed that the initial motivation to enter a medical university remained unchanged and was accompanied by a willingness to work at medical institutions to the extent of their abilities despite the increased occupational risks associated with the COVID-19 pandemic (Grigoryan et al., 2020).

Edgar et al. believe that if we attach more importance to the question of why students learn, this will help to guide teachers in choosing an approach to teaching and in influencing the students' learning outcomes (Edgar et al., 2019). This is especially true for medical students whose attitudes are not sufficiently explored because it is assumed that they are already motivated to learn (Martin, 2004).

In view of the above, the authors believe that learning motivation, while traditionally being one of the central problems of education, is underestimated in relation to medical students and requires further research, especially in the context of the COVID-19 pandemic.

2. Materials and methods

The research hypothesis is that the structure of learning motivation of Russian and foreign medical students has undergone changes during the COVID-19 pandemic.

The study participants were second- to fourth-year students in a 6-year medical programme at Sechenov First Moscow State Medical University. First-year and final-year students were not involved in the study. The first-year students had not yet formed a clear idea of the educational process, they had not fully felt the impact of the educational environment, and their adaptation to learning and socialisation in the student environment had not been fully completed. Final year students were already focused on their future plans.

The respondents were selected by random sampling among the Russian students studying at the Institute of Clinical Medicine and foreign students studying (in English) at the Centre for Foreign Education. Participation in the survey was voluntary and anonymous. All the respondents provided written consent to participate in the survey and to the consolidated processing of the results.

The survey was conducted between February 2019 and June 2021 at three stages to identify the structure of and changes in learning motivation. The stages were as follows:

- first stage, before the COVID-19 pandemic (February–March 2019) – 154 Russian students and 109 foreign students,
- second stage, the beginning of the COVID-19 pandemic (March 2020) – 130 Russian students and 90 foreign students,
- third stage, after the second wave of the COVID-19 pandemic (June 2021) – 106 Russian students and 70 foreign students.

The methodology developed by Rean and Yakunin and modified by Badmaeva for assessing students' learning motivation was used as a psychodiagnostic tool. It distinguishes seven principal

motives: communicative, avoidance-driven, prestige-driven, professional, creative self-realisation-driven, cognitive-developmental, and social. Each of them is assessed using a 5-point scale (Badmaeva, 2004).

Microsoft Excel spreadsheets and SPSS Statistics 22.0 software package were used to process the results. Fisher's ϕ -test was used for the comparative analysis of the learning motivation indicators at each stage of the study; Student's t-test for dependent samples was used to identify changes in the structure of motivation of Russian and foreign students in connection with the COVID-19 pandemic.

3. Results

The mean values of learning motives in Russian and foreign medical students obtained before the COVID-19 pandemic (February–March 2019) are given in (Table 1).

Table 1. Average values of educational motives of Russian and foreign medical students before the COVID-19 pandemic (February–March 2019)

Motives	Russian students		Foreign students		F-test
	Average value	Level	Average value	Level	
Communicative	3,8	High	4,0	High	0,009*
Avoidance	2,7	Medium	3,6	Medium	0,000*
Prestige	3,0	Medium	3,7	High	0,000*
Professional	4,3	High	4,3	High	0,744
Creative self-realization	3,4	Medium	3,9	High	0,000*
Cognitive-developmental	3,8	High	3,9	High	0,073
Social	3,7	High	4,3	High	0,000*

Note: * means $p < 0,01$

The results showed that the mean values of the learning motivation level before the pandemic in both groups of students were high for most of the motives. For both groups of students, the avoidance motives were characterised by a medium level, but the motives of prestige and creative self-actualisation showed a medium level only in the Russian students. In both groups, the motives of avoidance and prestige are lowest, while the professional motives are highest. Foreign students also have strong social motives.

A comparative analysis of the mean values of learning motives in the Russian and foreign students confirmed the absence of a statistically significant difference between them in professional motives and in the cognitive-developmental motives that are close to them. However, the average values of other motives in foreign students are higher ($p < 0.01$).

At the beginning of the COVID-19 pandemic, both Russian and foreign medical students showed high levels of professional, cognitive-developmental and creative self-actualisation motives. No statistically significant differences between these groups of students for these motives are observed (Table 2).

Table 2. Average values of educational motives of Russian and foreign medical students at the beginning of the COVID-19 pandemic (March 2020)

Motives	Russian students		Foreign students		F-test
	Average value	Level	Average value	Level	
Communicative	3,5	Medium	4,0	High	0,000*
Avoidance	2,8	Medium	3,5	Medium	0,000*
Prestige	2,9	Medium	3,5	Medium	0,000*
Professionals	4,3	High	4,3	High	0,704
Creative self-realization	3,7	High	3,8	High	0,327
Cognitive-developmental	3,8	High	3,9	High	0,559

Motives	Russian students		Foreign students		F-test
	Average value	Level	Average value	Level	
Social	3,3	Medium	3,8	High	0,000*

Note: * means $\rho < 0,01$

An increase in the creative self-actualisation motive amongst Russian students occurred since the beginning of the COVID-19 pandemic; this was at a medium level before the pandemic. Similarity in the structure of learning activity motives in both groups of students is also observed for the motives of avoidance and prestige, where the indicator values are at the medium level. However, foreign students showed more higher indicators than the Russian students ($\rho < 0.01$). Since the beginning of the pandemic, foreign students showed a decrease in the prestige motive, compared to early 2019.

The communicative and social motives also show a medium level in the Russian students' learning motives. The level of indicators for these motives was higher before the COVID-19 pandemic. The communicative and social motives continue to rank highly among foreign students; however, the average indicator for social motives decreased.

By the end of the second wave of the COVID-19 pandemic, the learning motives were characterised by a high level of professional, cognitive-developmental and creative self-actualisation motives for both the Russian and foreign students (Table 3).

Table 3. Average values of educational motives of Russian and foreign medical students by the end of the second wave of the COVID-19 pandemic (June 2021)

Motives	Russian students		Foreign students		F-test
	Average value	Level	Average value	Level	
Communicative	3,5	Medium	3,9	High	0,000**
Avoidance	2,8	Medium	3,5	Medium	0,000**
Prestige	3,0	Medium	3,6	Medium	0,000**
Professional	4,6	High	4,2	High	0,000**
Creative self-realization	3,7	High	3,9	High	0,019*
Cognitive-developmental	3,8	High	3,9	High	0,820
Social	3,5	Medium	4,2	High	0,000**

Notes: * means $\rho < 0,05$, ** means $\rho < 0,01$

The structure of learning motives in both groups of students has, in general, remained the same since the beginning of the COVID-19 pandemic, with a slight change in the manifestation of some indicators.

Professional motives are more pronounced in Russian students compared to foreign students ($\rho \leq 0.01$), while the creative self-actualisation motive is more pronounced among foreign students ($\rho \leq 0.05$).

The motives of avoidance and prestige have medium values in both groups, while the communicative and social motives also have medium values for the Russian students. There is a slight increase in the social motives, compared to the beginning of the COVID-19 pandemic, which is more pronounced in foreign students.

The changes in the structure of learning motivation of Russian and foreign students before the COVID-19 pandemic (2019) and at the end of the second wave of the pandemic in 2021 were also assessed and the results are given in (Table 4).

Table 4. Changes in the structure of the educational motivation of Russian and foreign students in 2019 and 2021 (before the COVID-19 pandemic and at the end of the second wave of the pandemic)

Motives	Russian students			Foreign students		
	2019	2021	t-test	2019	2021	t-test
Communicative	3,8	3,5	0,055	4,0	3,9	0,098
Avoidance	2,7	2,8	0,287	3,6	3,5	0,105
Prestige	3,0	3,0	0,529	3,7	3,6	0,453
Professional	4,3	4,6	0,000*	4,3	4,2	0,081
Creative self-realization	3,4	3,7	0,106	3,9	3,9	0,496
Cognitive-developmental	3,8	3,8	0,562	3,9	3,9	0,324
Social	3,7	3,5	0,053	4,3	4,2	0,185

Note: * means $p < 0,01$

Table 4 demonstrates some statistically significant shifts ($p < 0.01$) in the level of professional motivation of the Russian students; the changes in the foreign students' learning motivation are not statistically significant.

4. Discussion

The results show that before the pandemic most Russian and foreign medical students' learning motives had a similar structure: high levels of professional, cognitive-developmental, social, and communicative motives and a medium level of avoidance motives. Professional motives showed the highest values in both groups; while the foreign students also demonstrated higher social motives than the Russian students.

The priority of professional motives in the hierarchy of both groups evidences the professional orientation and conscious choice of profession by the majority of students. The students are characterised by the desire to achieve success in their professional activities, by focusing on professional self-development, the acquisition of knowledge, skills and abilities, and the demonstration of professional abilities. This is a substantiation of the high level of professional identity, an awareness of the learners' professional purpose, and an affiliation with the professional group.

The high cognitive-developmental motive shows that Russian and foreign students are well aware of the need to make the most of the opportunities of the current educational environment. Medical students are characterised by a pronounced desire to acquire the knowledge and skills required for their future professional activities.

The social motives reflect the students' orientation towards social approval. Many students believe their learning performance predetermines their future professional success, the level of material welfare and social recognition in the future. The COVID-19 pandemic emphasises the importance of the social orientation of the medical profession and the importance of the professionalism and humanism of medical doctors. This agrees with Erickson's epigenetic concept according to which an individual's personality and society should not be opposed. Society contributes to the development of the personality, provided that the individual accepts and performs certain rituals, follows the traditions of the society or group, including their professional community (Freud, 2002).

Before the COVID-19 pandemic, communicative and professional motives were at the forefront in the general hierarchy of motives in both groups of students. This is indicative of the fact that the majority of Russian and foreign students are aware of the need to communicate with different people in their professional activities—patients, patients' relatives, colleagues – which requires the possession of knowledge and communication skills appropriate to the social context. The communicative motive is significantly higher among the foreign students. This could be explained by the fact that these students consider their profession and their respective social position in society as a condition for meeting and communication with others. The desire to gain the respect of colleagues and to feel self-confident is another communicative motive of learning. Russian medical students, however, may underestimate the importance of communication with increasingly technical emphasis in contemporary medicine.

Although avoidance motives showed medium figures in both groups, these indicators were significantly higher for the foreign students. This demonstrates that they have a stronger desire to avoid mistakes and failures and a greater responsibility for the results of their work, compared to their Russian peers.

Other differences in motives were, for instance, the motives of creative self-actualisation and prestige, which were higher among the foreign students. This could be connected to the fact that foreign students gain prestige through mastering a profession earlier than Russian students. This is confirmed by the structure and dynamics of the motivation in the students' personality. The research showed that the desire to acquire prestige through professional status is typical for students of all years of study; however, the motivation of senior medical students is dominated by professional and social motivation (Karabinskaya et al., 2010).

The greater extent of the maturity in the professional choice of foreign students compared with Russian students could be attributed to their greater creative self-actualisation. This conclusion is also confirmed by other researchers. For instance, Denisova et al., in their study of students' learning motivation at Omsk State Medical University, noted the possibility of personal intellectual and creative actualisation as a significant factor in the learners' professional choice (Denisova, 2019).

Since the beginning of the pandemic, the structure of the motives changed in both groups of students, but in a slightly different way. The motive of creative self-actualisation in the Russian students increased to a high level and statistically ceased to differ from that of the foreign students. This can be explained by an increasing professional awareness due to the extended practice with patients, which could have activated this form of motivation. This confirmed the results of a survey where the motivation of student volunteers was assessed. These students provided aid to people who found themselves at risk of suffering complications of the coronavirus. Along with having specialised knowledge, the student volunteers noted the need for a number of personal qualities, including mental adaptivity and creativity (Tavstukha, 2020).

The communicative and social motives in the Russian students lowered to a medium level. The foreign students also showed a decrease in social motives, but they remained at a high level. The foreign students' prestige motives indicators decreased to a medium level but were still higher than those of the Russian students. In the authors' opinion, these changes can be explained by the students' focusing on professional activity in connection with the pandemic, the reevaluation of difficult and even extreme conditions of medical work and the development of a sense of commitment and professional responsibility.

By the end of the second wave of the pandemic, the motive structure in both groups retained the changes that emerged at the beginning. There were increased social motives in the foreign students, and increased indicators for professional motives in the Russian students.

During the early pandemic period, statistically significant changes in the level of professional motives were observed only in the Russian students. This is indicative of a change in their learning motivation: to be successful in their future professional activity, to fully use their abilities and aptitudes in the realisation of their chosen profession, and an expressed concern for professional growth.

The results could be explained by the fact that the Russian students, unlike foreign ones, were actively involved in working with coronavirus and other patients during the COVID-19 pandemic; their study took place in parallel with more extended practice where they gained valuable experience under the guidance of working doctors. By observing these doctors, Russian students learnt how to act in various emergency situations and the doctors themselves often realised that these students would soon become their colleagues, so they treated them attentively, sharing experiences and answering questions. Many of the students, after working in such conditions, began to understand how difficult the profession they have chosen is, and perceived the pandemic as a kind of challenge to their future professionalism. Therefore, medical students have a more conscious attitude to their studies.

These results are consistent with the findings of a survey conducted among the students and attending physicians of Pavlov Ryazan State Medical University who worked in medical institutions as volunteers from the first days of the pandemic (Zholudova, Krestyaninova, 2021). We conclude that the activity of 80 % of medical students is motivated by the actual content of their professional work. The respondents are focused on achieving the desired goals; they wish to apply their

knowledge, skills and abilities in their professional activity, to establish communication, to participate in competitions, to get work experience.

In summary, there has been a change in the structure and manifestation of the learning motives (professional, creative self-actualisation, communicative, social and prestige-driven motives) of Russian and foreign medical students. The assumed research hypothesis that the structure of learning activity motivation of Russian and foreign medical students has undergone changes during the COVID-19 pandemic has been confirmed.

5. Conclusion

The comparative analysis of changes in the basic learning motives of Russian and foreign students receiving medical education in the same specialty at the same university confirmed the research hypothesis that the structure of their learning motivation has changed during the COVID-19 pandemic.

The structure of learning motivation in both Russian and foreign students before the pandemic points to a developed professional orientation and a conscious choice of profession, generally characteristic of medical students: the indicators for most of the motives show a high level, with significant professional motives. However, motives for the formation of a humanistic personality such as cognitive-developmental and creative self-realisation were significantly less expressed than professional ones. During the COVID-19 pandemic, the Russian students showed an increase in the manifestation of professional motives, probably due to earlier practise with patients, and an increased level of creative self-actualisation motives and a decreased level of communicative and social motives. The foreign students showed a decreased level of prestige-driven motives, along with some decrease in the manifestation of social motives.

The results open prospects for the further development of the human potential and professionalism of medical students, which can serve as a basis for improving medical education.

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