

# Technologies of methodical improvement of professional competence in the process of medical education

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**Abstract.** This article deals with issues of medical education, deontology of future doctors, methods of developing professional competence in medical education, comparative analysis of methodological support, pedagogical categories, professional qualities of medical staff, semantic content of medical education, factors influencing the health process, the importance of pedagogy in medical education. The tasks of education, distance learning in the process of medical education, the analysis of experimental results of research results are presented.

## 1 Introduction

Normative documents have been adopted in developed countries on the basis of a number of studies on medical education, deontology of future doctors and professional competence. Also included are “Medical Pedagogy” and “Medical Deontology” studied at the University of Akkon Hochschule für Humanwissenschaften in Germany, “Health Pedagogy” in the United States, “Edinburgh Declaration of the World Federation for Medical Education” and “International Code of Medical Ethics”. They are, first of all, the expression of the formation of the self-physician as a professional development to achieve the goals of professional activity, defined by society; secondly, there is a system of human relations in the medical, pedagogical profession.

In recent years, the country has created a legal and regulatory framework for reforming the field of medical education, bringing the quality of medical education to a new level, implementing modern mechanisms of professional development of future doctors, updating the resources of modern medical literature on the basis of international experience. "Further improvement of the system of continuing education, increasing the capacity of quality educational services, continuing the policy of training highly qualified personnel in accordance with the modern needs of the labor market" were identified as priorities in the field of medical education. In today's pandemic, the requirements for training doctors with modern knowledge, developing their professional competence, increasing their social activity are characterized by the above [1-20].

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## 2 Methods

Development of practical proposals on technologies for methodological improvement of professional competence in the process of medical education.

Research Objectives

coverage of theoretical and methodological bases of the process of development of professional competence in the process of medical education;

to determine the comparative analysis of the methodological support for the development of professional competence of future physicians in the process of medical education;

development of a pedagogical model of preparation of future doctors for professional activity in the process of medical education;

substantiation and practical testing of pedagogical conditions that serve to develop the methodological support of professional competence of future doctors in the process of medical education;

medical education was defined as the development of methodological recommendations aimed at improving the performance of the components of the development of professional competence in the educational process.

Research Methods. Development of higher and secondary special education in the Republic of Uzbekistan, study of normative documents on doctor training, modeling, questionnaires, tests, observation, study of student activity, pedagogical observation, interview, integrated diagnostics, sociometry, pedagogical experiment, sociological surveys, content analysis, interview, Mathematical and statistical methods and pedagogical experiments were used.

The scientific novelty of the study is as follows:

through the analysis of existing module programs in the process of medical education and the integration of specialized disciplines, pedagogical categories for the development of professional competence of future doctors were identified and a modernized mechanism for the development of professional competence was developed;

the stages of designing professional competencies in the process of medical education, the necessary competencies specified in the professional profile of future doctors, indicators of professional competencies, the dynamics of professional competence development, the semantic content of professional activity in medical education and the relationship with professional activity;

In order to increase the professional activity in the educational process of medical education, the ability of students to simultaneously exchange ideas with a number of foreign students was developed through the use of distance learning modules "Consortium", "Franchising" in specialty subjects;

in the development of the model "Development of professional competencies in future doctors" aimed at improving the system of professional competencies of students in the process of medical education, based on the principles of criteria, indicators, diagnostics of professional competence development;

a set of pedagogical conditions for the methodological support of the development of professional competence of future doctors in the process of medical education is based on the theoretical study of the work and a systematic project of modern methods for their implementation is presented and conceptual recommendations are developed.

In our study, the essence of the culture of the future physician is reflected in the interplay of professional competence, the components of professional activity. Therefore, every prospective physician must take personal moral responsibility for his or her professional activities. Because it is a key link in his goal setting, decision making, personal behavioral planning, and the professional activities that depend on him. The transformation

of high professionalism into a high professional culture, social activism, personal confidence, conscious motives and norms of habitual behavior is highlighted as the main educational task of higher medical education institutions today.

As part of the analysis of the professional competence and professional qualities of the medical worker and the specifics of their manifestation, we considered that social and professional relations of medicine can be defined as a separate field. The medical profession is the work of a specialist who has a set of specialized medical theoretical knowledge and practical skills obtained as a result of special training, experience and work experience.

Studies show that professional competence regulates the professional activity of physicians and ensures its effectiveness, as these are internal, corporate ethical norms that guide and limit the application of medical knowledge and skills in certain situations. "Morality," writes T.A Kovelina, "the personality of the doctor serves as a guarantee of his integrity. To renounce morality and its requirements is to deprive oneself of the opportunity to become a doctor."

A doctor's culture is determined by his behavior and culture. The professional ethics of a physician is determined by the protection of human health and life and the pursuit of his or her goals. What is doctor ethics? It is part of the general ethic that can be described as the science of the moral values of the physician's behavior in his or her field of activity. "Medical ethics encompasses a set of standards of conduct that define a physician's duty, conscience, and conscience," Grando said.

The purpose of medical education is to develop in future doctors such skills as competence, responsibility, the ability to sincerely help patients, compassion. These are manifested through two components of medical activity:

the first is dignity in activity, which is associated with self-awareness in professional activity, professional identity, acceptance and development of humanistic views;

the second is the technological mastery of the basics of professional culture and activity. Medical education has been shown to be the task of combining these components, which determine the level of professional and personal development of future physicians.

Medical students need to know the factors that affect the normal process of health care as a system by the World Health Organization, said the scientist N.V. Kudryavaya, and these are defined as follows

1. Individual predisposition - heredity, features of development in the perinatal period, past accidents or diseases, the nature of childhood upbringing or others;

2. Social orientation - a valuable direction of society, the social type of the individual, individual lifestyle, behavioral characteristics specific to a particular group, education and upbringing during adolescence.

3. The conditions of a child's life formed during adolescence - income and family lifestyle, housing conditions, employment opportunities, stress and crisis situations, etc.

4. Health opportunities for individuals in the community - free access to health services, nutrition, sanitation, education in the field of health and strengthening, etc.

Studies have shown that emotional distress is a major factor influencing the health of young people in transition in society.

Analyzing the importance of pedagogy in medical education during our research, today showed the need to define the role of health in education:

Improving the health reserve of the 7th generation;

ensuring human physical and mental health;

identification of the child's intellectual abilities and abilities through medical diagnostics;

development of a special individual nutrition program rich in multivitamins and trace elements;

determining the child's readable biorhythm times.

It has been determined that one of the tasks of both medicine and education is to educate the next generation in a comprehensive and harmonious way.

Today, in the process of focusing on the important aspects of pedagogy in the training of future doctors, we have taken a broader approach to the development of clinical thinking of future doctors and tried to enrich it with clinical thinking and complex psychotherapy methods: explaining, teaching and educating the patient. treatment;

convincing the patient, influencing, creating hope for an optimistic treatment;

to be able to change it: to get rid of wrong thoughts, excessive anxiety, worry and fear, weaknesses, harmful habits, superstitions and ignorance;

rational demand, manage, direct the implementation of mandatory rules and recommendations, if necessary;

formation of a responsible attitude of the patient to his health, increase of psycho-social activity;

promoting a healthy lifestyle among the population, increasing medical knowledge and culture.

The purpose of using effective methods in the process of medical education is to organize, accelerate and activate educational activities in different forms, interesting, lively, meaningful, productive. At the same time, the student's independent thinking develops, knowledge increases, strengthens, communication skills improve, personality is formed and the effectiveness of the learning process increases.

There are 3 principles for applying the theory of multiplicity of intelligence in medical education: education is the development of different types of intelligence; students are sometimes involved in the assessment process; applying this theory in the teaching process requires knowledge, preparation, great strength and creativity from the teacher.

He revealed that each person has at least nine types of intelligence, expressed at different levels: verbal-linguistic intelligence; logical-mathematical intelligence; visual-spatial intelligence; physical (motor) -motion intelligence; musical-rhythmic intellect; interpersonal (social) intelligence; inner personal intelligence; emotional intelligence; naturalistic (naturalist) intellect; existential intellect.

The main technologies of distance education in the process of medical education can be divided into the following two groups: Interactive technologies: Internet distance learning portal; video and audio conferencing; e-mail training; independent learning via the Internet; remote control systems; online simulators and training programs; test submission systems. Non-interactive technologies: video, audio and printed materials.

### **3 Experimental results**

Taking into account the above-mentioned criteria and indicators of the development of professional competence in future doctors, the level of development of professional competence in the qualification requirement was defined as low, medium and high.

Low level - low knowledge of professional competence of medical students, no desire to use them in professional activities, no need for adequate moral and ethical assessment, not ready to take responsibility in professional activities.

Intermediate level - medical students have a satisfactory knowledge of professional activities in the conduct of educational activities, However, in their use in their professional activities expect external motivation, help from the teacher, hesitation in self-assessment of professional activity, lack of professional responsibility.

High level - has a deep knowledge of professional activities, strives to use them in professional activities, self-adequate self-esteem, has stable motives for professional

competence, correctly evaluates self-professional activity, professional activity is ready to take responsibility.

Students of 6 groups of "Medical pedagogical work" were taken for experimental work. Experimental groups - 1st year (12 people), 2nd year (12 people), 3rd year (10 people) and control groups - 1st year (12 people), 2nd year (12 people) and 3rd year (12 people). ), 4th year students (12 people), 5th year students (11 people) and 6th year students (12 people).

Based on the analysis of the experience, it was found that the majority of first-year students majoring in "Medical Pedagogy" (TG) developed professional competence - 47.6% - low, 43.4% - average and only 9% - high.

Among first-year students majoring in medical work (NG), these figures were found to be close to 46.9% - low, 44.9% - average and only 9.1% high (see Table 1).

**Table 1.** The final results of the recording phase of the experimental work (the level of development of professional competence in future physicians).

| Groups  | Low  | Average | High |
|---------|------|---------|------|
| EG      | 47,6 | 43,4    | 9    |
| CG      | 46,9 | 44,9    | 9,1  |
| Average | 47,2 | 44,1    | 9,05 |

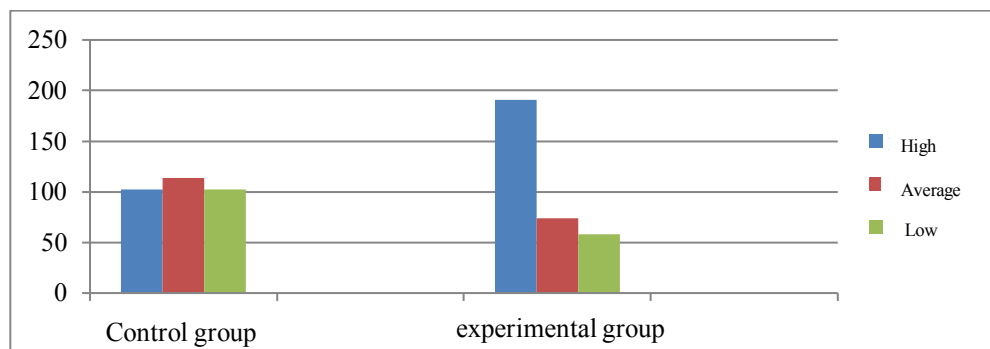
At the recording stage of the experiments, the level of development of professional competence of medical university students was determined on the basis of motivational, cognitive and personal criteria.

Thus, the analysis of the survey results (Table 2) showed that the majority of respondents (57.14%) showed a very low level of professional motivation, focusing on professional knowledge, skills and abilities, rather than traditional medical education, 42.8% of respondents has the ability, but it is not provided with professional activity. The level of motivation for professional competence is very low. This situation indicates that the levels of professional competence attitudes in both the experimental groups and the control groups are almost identical.

**Table 2.** Table comparing the statistical values of experimental work on the development of professional competence in future doctors.

| Experimental stages          | Experimental group Number of students - 323 people |         |      | Control group Number of students - 318 people |         |      |
|------------------------------|--|---------|------|---|---------|------|
|                              | Low  | Average | High | Low   | Average | High |
| At the end of the experiment | 58   | 74      | 191  | 102   | 114     | 102  |
| In percentages:              | 18   | 23      | 59   | 32  | 36      | 32   |

The Student and Pearson methods were also selected to perform statistical analysis during the empirical trial period. This method is able to identify and objectively assess the indicators recorded in the two groups. According to the essence of the mathematical statistical method, as in the first stage, it was necessary to form variance series at high, medium and low levels, defined as 1-2 samples recorded in the experimental and control groups. This took the following view in the diagram. (See Fig. 1).



**Fig. 1.** Diagram of the level of development of professional and spiritual qualities in future doctors.

Thus, a statistically significant difference between the results of the control and experimental groups shows that the fulfillment of the identified pedagogical conditions led to a significant increase in the level of development of professional competence of students in the experimental group compared to control.

Experimental work has confirmed the effectiveness of our approach to the organization of the medical education process to develop the professional competence of medical education students in the context of the pedagogical conditions in which we operate. The introduction of these conditions will help future doctors to increase their knowledge of professional competence, deontological bases, attitudes to the person, professional relationships, the level of development of empathic abilities, the formation of the necessary professional competence and self-awareness. Therefore, the results of experimental work confirmed the validity of the theoretical rules identified in the study.

## 4 Conclusion

1. A modern doctor is an exemplary intellectual, highly qualified specialist, with extensive experience, cultured, creatively active, responsible approach to his profession, able to communicate freely with patients, with deep knowledge in his field.

2. The professional deontology of a future physician can be considered as his level of professional development. It is a system of developing a professional culture of a doctor who is ready to show humane and responsible attitude towards their relatives, colleagues, professional activity, moral and professional self-improvement in his professional activity.

3. The purpose of developing professional competence in future doctors is to form a high moral culture of the individual, which is reflected in everyday life, medical practice, interpersonal relationships and professional communication.

4. The basis for the development of a doctor's professional competence is the knowledge of the professional ethics that every doctor applies in his professional activity, in the doctor-patient communication.

5. The development of professional competence of students of medical higher education institutions is a complex, long-term, consistent development process, which requires cooperation of all participants in the educational process. The effectiveness of this process depends on such factors as the validity, structure, creativity of the training, the effectiveness of the activities, the creation of optimal conditions for self-development of students.

6. The experimental work confirmed the effectiveness of the methodologies developed during the study and introduced in medical higher education institutions.

7. The study developed the following criteria for developing the professional competence of future doctors: motivational; cognitive; personal; the complex application of the activity criterion, etc. ensures the objectivity and high quality of the obtained results.

8. Based on the results of theoretical research and experimental work aimed at developing the professional competence of future doctors, it has been confirmed that pedagogical conditions, such as increasing the level of development of professional competence of future doctors, will help.

9. The results of experimental work confirmed the effectiveness of the model of development of professional competence of future doctors and the introduction of a special course "Current issues of innovative approaches in teaching specialties", which implements its basic provisions and allowed to use the proposed materials in higher education.

10. It is an important tool for the formation of future doctors in the educational process and the normative regulation of the educational process in all areas of educational activity. Therefore, defining the tasks and content of the educational process in terms of the professional activity of future doctors is one of the pedagogical conditions that ensure the effective development of their professional competence.

Based on the results of the study, the following scientific and methodological recommendations were developed:

development and consistent implementation of plans of integrated lectures on the development of professional activity of students in medical higher education institutions;

effective use of cases, methods, including the use of qualified doctors and the experience of foreign professors and teachers in the development of professional competence of future doctors;

Improving the system of professional competencies of students of medical higher education institutions, the activities of tutors and their plans to work with students within their specialties;

conditions for students to gain creative experience, to create opportunities for them to form not only as a doctor but also as a doctor-educator, and to expand their opportunities in the educational process, to create a favorable environment for them to develop their professional competence;

Regularly provide new methods of medical education in the telegram channels on the official websites of higher medical education institutions, webinars with leading medical universities of foreign countries with developed medical pedagogy, the organization of integrated lectures, thereby preparing students for pedagogical activities.

## References

1. M. S. Diankina, Professionalism of a teacher of a higher medical school. Moscow (2000)
2. O. Jamoldinova, Improving the pedagogical mechanisms for the implementation of the principles of continuity and continuity in the development of a culture of healthy youth: Autoref. ped. fan. doc. Tashkent, p. 51 (2015)
3. A. Isimova, Pedagogical conditions for promoting a healthy lifestyle in students in the extracurricular educational process (on the example of grades V-IX): Dis. ped. fan. nomz . Tashkent, p. 213 (2004)
4. Z. K. Ismoilova, Theoretical and experimental-methodological bases of spiritual and moral education: Dis. DSc. Tashkent, p. 45 (2006)
5. S. Yuldasheva, Socio-pedagogical bases of spiritual upbringing of a healthy generation in Uzbekistan: Dis. PhD. Tashkent, p. 119 (2001)
6. N. V. Kudryavaya, K. V. Zorin, Introduction to the spiritual culture of a doctor. Psychological foundations of a doctor's activity. Moscow (1999)



7. Sh. Q. Mardonov, Pedagogical bases of training and advanced training of pedagogical staff on the basis of educational values. DSc. Tashkent, p. 302 (2006)
8. M. Maxmudova, The system of preparing students for family life based on the content of folk pedagogy. Dis. DSc. Tashkent, p. 282 (2007)
9. O. Musurmonova, Pedagogical bases of formation of spiritual culture of high school students: Doctor of Pedagogical Sciences. Diss. Tashkent, p. 48 (1993)
10. S. Nishonova, Spiritual roots of youth education. Tashkent: Yangi asr avlodi, p. 186 (2008)
11. M. Ochilov, High school pedagogy. Tashkent, Aloqachi, p. 304 (2008)
12. K. Risqulova, Cooperation of non-governmental organizations in the development of a culture of healthy youth life: Avtoref. dis. PhD. Tashkent, p. 21 (2011)
13. D. Rozieva, Scientific and pedagogical bases of formation of a sense of national pride in students of higher education institution: PhD. Tashkent, p. 255 (2007)
14. Yu. E. Rakhimova, Formation of professional competence of students of medical colleges. A-ref thesis for a job. Uch. Candidate degrees Ped. Science. Tashkent, p. 24 (2012)
15. S. Tursunov, Development of the pedagogical system of "health school" in secondary special, vocational education institutions: Dis. DSc. Tashkent, p. 343 (2011)
16. D. Sharipova, Scientific bases of hygienic education of students: Author's abstract. Dis. Dr. ped. sciences. Toshkent (1990)
17. Sh. S. Shodmonova, Formation and development of independent thinking in university students (on the example of the direction of vocational education): Ped. fan. doc. diss. Tashkent (2010)
18. M. Haque, *Journal of Global Pharma Technology* **12(9)**, 10-18 (2017)
19. M. Holden, E. Buck, M. Clark et al., Professional Identity Formation in Medical Education The Convergence of Multiple Domains *HEC Forum* **24**, 245–255(2012)
20. I. Wilson, L. S. Cowin, M. Johnson, H. Young, Teaching and Learning in Medicine: an *International Journal* **25 (4)**, 369-373 (2013)