

Medical Education in Digital Transformation

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ABSTRACT

At the present stage, the problem of introducing media technologies in all spheres of life, including the digital transformation of professional education, has become very urgent. This is a process of integrative interaction of information and communication systems, highly complicated and dynamically changing conditions of modern university education. Information technology in modern conditions is paramount in the process of training young people. The use of innovations in all areas of the educational space contributes to the transition to a higher level of assimilation of professional knowledge. In the article, the authors argue the need to get rid of outdated traditional programs in universities, substantiate the strategic importance of enhancing the implementation of digital techniques in the field of providing educational services in the field of medicine, training a specialist who can skillfully manage high-tech professional processes, quickly navigate in a huge flow of information, quickly find out what is needed and apply in practice.

Keywords: *professional medical education, information and communication space, media sphere, digital literacy, sociocultural field of the medical profession, clinical research modeling*

1. INTRODUCTION

At the present stage, professional education is not only the process of bringing a student to the upcoming implementation of professional functions. Effective preparation of a young man for a fruitful life in the highly complicated and dynamically changing conditions of the modern world is today's society's demand for professional education [4, 6].

The concept of "electronic society", introduced by the Canadian philosopher and culturologist M. McLuhan, means a society in which an integral information picture is formed on the basis of fragmentary information from different areas of society. It clearly demonstrates the great influence of mass media on society as a whole. The key role in the development of modern public order is assigned by the author to the formation of specialists in various fields of science and the latest technologies.

Today, a significant proportion of relations in society, economy and other areas is carried out in the Internet space, which creates a kind of media sphere, the "information and communication space", which involves special laws and orders, presence of the interaction of formal groups. As well as its own hierarchy of values and culture [2]. All this confirms the idea that at the present stage a new social reality is being formed [3, 9, 13].

Purpose: to actualize the importance of the digital transformation of professional educational services to medical students on the basis of research on the processes of integrating "smart technologies" in the field of higher medical education.

2. METHODOLOGY OF THE STUDY

The methodological basis of the work is practical researches on the implementation of digital technologies from various fields of scientific knowledge in the pedagogy of higher medical schools. Methods of analysis, synthesis and analogy were used as well. As information sources, the article presents the development of Russian and foreign scientists on the stated problem, the results of their own scientific observations.

3. STATEMENT OF THE PROBLEM

In the modern system of higher education in the conditions of constant modernization, it is required to build an individual trajectory for improving the future professional worker in order to effectively become a highly qualified specialist [5].

In the process of developing a program of professional self-development of an individual, it is required to take into account state standards, motivational professional activity; personal and professionally oriented qualities of students, personal stages of growth. This is emphasized in the works of T.A. Burmistrova, Sh.S. Demisenova, P.G. Shchedrovitsky, E.M. Schneider and other specialists [8, 11].

I. L. Lapteva considers professionalism not only as the reproduction of knowledge acquired in a higher educational institution. This is also a manifestation of initiative, a non-standard approach to solving the tasks, a tendency to constant professional self-education, personal self-improvement. The effectiveness of the student's

upcoming professional activity depends not only on the acquired knowledge and skills acquired at the university, but also on the formed ability for creative self-development. And at the present stage, it is also a transition to qualitatively new technologies with multi-platform as a leading tool, which contributes to the formation of specialized skills, "digital literacy". According to N.D. Berman "digital literacy" of modern man can be characterized as knowledge and skills that require the safe and effective use of Internet resources and digital technologies. It includes technical, personal, intellectual skills: quickly find, analyze and evaluate information; navigate information flows; skills of continuous education, dialogue, determination of manipulation of an individual user, or various groups, etc. [1].

According to A.A. Muzalev, the success of professional growth depends on the degree to which the requirements of the profession are consistent, the personality perceives traditions, norms, rules of conduct in a particular professional environment and the individual psychological qualities of a specialist. This gives reason to talk about the status and importance of professional culture, the strategy of its formation as a factor aimed at the development of personality and the formation of the professionally significant qualities. Modern requirements for young specialists, graduates of universities require fulfilling the order of society for the application of professional skills in the conditions of rapid development of technologies, the use of a huge amount of databases, the results of modern scientific research on a global scale. All this, one way or another, forces us to take and use all the available capabilities of the media space, to switch from analog to digital technologies, to fully utilize the capabilities of the modern technological infrastructure, where the spectrum of digital services and products has expanded and diversified.

Digitalization of medical education implies the main trend of its change, taking into account scientific and technological progress in the field of improving medical technologies. The advantages of new digital techniques, the objectivity of the knowledge assessment that they provide, an infinite number of training alternatives allow you to free people from the obsolete technologies of traditional programs in universities [10].

Although medical education is characterized by pronounced conservatism, the transformations in teaching methods are undeniable. Students and teachers see the need in the introduction of digital technology in the education process. At the present stage, this is an appeal to digital medicine in order to obtain a complete description of the health of the human population: data on changes, the necessary monitoring resources, on diagnosis and treatment, on the rehabilitation process, recovery and health conservation in general.

Media and digital technologies in medical education provide real opportunities to get away from traditional education, the meaning of which is awareness and expansion of knowledge, often without relying on the student's knowledge base. The latest technologies will

allow us to abandon the methods based on the narrative and move on to the activity ones. Certainly, the role of innovation is to contribute to the development of individual active educational and cognitive activity of students, in the process of which there is a change in the methods of assimilation of a large amount of information, the system of thinking changes, and the creative potential of a future specialist is developed. This is the competency-based approach to the educational process, ensuring its development [12].

4. DISCUSSION OF RESULTS

In the study of digital culture, it is not enough to limit oneself to the analysis of technologies, formats, devices, since it is necessary to consider changes in the practices and products of human activity themselves. The emphasis should be shifted to the study of what is happening with culture in the context of the spread of digital technology. The next step, which we are currently observing, is the process of integrative interaction of information and communication technologies and systems, highly complicated and dynamically changing conditions of modern university education.

In her scientific works, L.N. Maksimova notes that such an element of professional culture as a professional ethnos is based on the complex interaction of subjective and objective, external and internal factors in relation to a person. Kozhevina E., N. Sorokina, T. Shchepanskaya consider as external factors: the political strategy of the state; the level of mastery of democratic values (the idea of equality and principles of mutual respect that determine the possibility of mutual acceptance and assistance); specificity of professional relations in society; social stratification of the community, which is a factor in the process of forming the image of a professional person; their degree of formation of scientific knowledge and their place in the general educational system. External factors also include digital, media technologies, as integral components of modern information and communication communications. Internal factors include: the sociocultural field of the profession, creating some kind of limitation or opportunity; specific relationships with narrow related specialties; features of professional information contacts; personal experience in the profession.

The formation of the professional qualities of young people in higher education is reduced to a change in cognitive activity to a professional one and, accordingly, a change in target settings, used means, compliance with modern requirements, various actions and their results. In professional medical education, the use of digital technologies covers dentistry, treatment of bone pathologies, transplantology, those areas where the accuracy of three-dimensional planning of medical effects, the calculation of the shape and size of implants, prostheses, and mechanical loads are necessary. For example, Queen's University and Virginia Tech Carilion School of Medicine colleges use "virtual patients" in practice. Using the Anatomage anatomical table,

consisting of sensory control and a special program, diagnostics and modeling of clinical studies are carried out. The device presents 3D models of human bodies with well-known pathologies, with the help of which anatomy, histology, embryology, and general pathology are studied. Students' attention is focused on a 2-meter touchscreen display with the image of the subject in full size. The visualization of bodies is based on real images, which allows layer-by-layer penetration of the skin, muscles, skeletal system, and internal organs. The use of virtual surgical instruments enables students to cut, combine, distribute image segments in different projections, as well as change the scenario of actions [13].

More and more large-scale online lecture technologies began to be introduced in Russian universities. Students are encouraged to familiarize themselves with the subject matter of the material presented in advance, to track new trends in a specific field of knowledge, and to examine in more detail the features of the material being studied at a lecture lesson in an interactive form, in the form of debate, discussion, using online methods. In the realities of today's innovations, the Institute of Electronic Medical Education, formed on the basis of the First Moscow State Medical University, has become relevant and popular. Students, residents and doctors have access to more than eight hundred electronic lectures [14].

Specialists see the university's role in the integrative socializing and information-communicative aspects at the same time in the content of the educational process, and in a certain landmark for the future position in society and the profession, adaptation to technological innovations and technologies, immersion in the modern digital medical media space. At the same time, in the new conditions of the use of digital medical technologies, there is a real opportunity to step forward, providing students with a huge amount of information through the use of professional medical databases, electronic atlases, the possibilities of three-dimensional planning, modeling, the use of modern medical equipment on virtual phantoms, etc.

G.M. Andreeva points out that sociologists play one of the important roles in culture in the modern social adaptation of a doctor. In medical higher education institutions, it is necessary to create an environment that promotes the acceptance of universally accepted values by a person and preaches the centuries-old cultural heritage of medicine. Social adaptation through the prism of an activity-based approach is understood as a person accepting social experience when entering a different informational, communicative, technological environment with a new internal system of connections, and at the same time, as an active inclusion in these connections, interactions and the social environment. In the field of science, there are difficulties in timely fixing and evaluating such a relationship, due to the fact that dynamic changes are ahead of the intensity of the accumulative process of knowledge. However, the evidence and need for a detailed analysis of digital media cannot be denied, since digital technologies help to ensure an incredible scale of cultural norms that affect the formation of a single media space

and at the same time provide the opportunity to use high-quality new forms of cultural products.

In the near future, the criterion for assessing the quality of education of future doctors may be an integrative characteristic of specialists, which is able to determine his ability to solve frequently encountered professional problems and emerging problems. The ultimate goal of teaching young people in medical universities is the formation of a moral and spiritually developed individual, independent of national and cultural characteristics, harmoniously combining a high level of professionalism, education, spirituality and moral upbringing. A specialist who knows how to skillfully manage high-tech processes, owns the skills of professional labor processes in the medical specialty. Thus, it is in such a social environment created by a medical university that the professional culture of the medical community is reflected.

A professionally directed student formation is defined as a process determined by society in which an individual integrates into a professional environment and adopts a modern level of medicine and the health system as a whole. At the present stage, the doctor needs to have deep medical knowledge and skills, be able to work with new information technologies, have engineer skills, and have knowledge in technological entrepreneurship. Moreover, new specialties at the intersection of medicine and engineering become relevant, for example, the demand for "biomedical 3D technology" is growing [7].

5. CONCLUSION

Based on the results of the study, we can conclude that information technology is paramount in the process of training young people, the use of innovations in all areas of the educational space contributes to a transition to a higher level of assimilation of professional knowledge.

The uniqueness and multidimensionality of the media is reflected in all areas of the life of a specialist in modern medicine. The possibilities of digitalization in modern medical education lead to large-scale sociocultural changes: they provide opportunities for users to independently participate in the generation and improvement of content, the search for more advanced technologies, form a special integration relationship between traditional practices and digital technologies in healthcare. These integration ties contribute to the creation of a qualitatively new phenomenon - digital medical culture and education, changing their traditional forms to more progressive ones.

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