LEARNING PROBLEMS OF MEDICAL INFORMATICS

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Baymuratova Irina,
Master of information technology educator Tashkent State Technical University named after Islam Karimov,
Project member of the Institute of Nuclear Physics AN RUz

Bozorov Erkin,
Doctor of technical sciences, professor of the National University of Uzbekistan
Doctor of technical sciences, professor of the Institute of Nuclear Physics AN RUz.

TIBBIY INFORMATIKA FANINING O‘RGANISH MUAMMOLARI

Irina Baymuratova,
1Islom Karimov nomidagi Toshkent davlat texnika universiteti axborot texnologiyalari fani o‘qituvchisi, O’zR AN Yadro fizikasi instituti loyiha a’zosi

Bozorov Erkin,
Texnika fanlari doktori, O‘zbekiston Milliy universiteti professori
texnika fanlari doktori, O‘zR AN Yadro fizikasi instituti professori,

ПРОБЛЕМЫ ОБУЧЕНИЯ МЕДИЦИНСКОЙ ИНФОРМАТИКЕ

Ирина Баймуратова,
Магистр, педагог информационных технологий Ташкентского государственного технического университета имени Ислама Каримова, Участник проекта Института ядерной физики АН РУз

Бозоров Эркин,
Доктор технических наук,
профессор Национального университета Узбекистана
Доктор технических наук, профессор Института ядерной физики АН РУз.

Abstract. The article deals with the problem of studying the subject «Medical Informatics» in higher educational institutions. The specifics of this subject, and opportunities to improve the quality of knowledge in this subject. A brief history of the emergence of this subject in Uzbekistan and the development of the subject «Medical Informatics» as a separate direction is also given. There are also studies of preparing schoolchildren and students for the study of this subject and improving the quality of education.

Maqolada oliy o’quv yurtlarida «Tibbiy informatika» fanini o’rganish muammosi ko’rib chiqiladi. Ushbu fanning o’ziga xos xususiyatlari, bu fan bo’yicha bilim sifatini oshirish imkoniyatlari. Bu fanning O`zbekistonda paydo bo`lishi va “Tibbiy informatika” fanining alohida yo`nalish sifatida rivojlanishining qisqacha tarixi ham berilgan. Maktab o‘quvchilari va talabalarini ushbu fanni o‘rganishga tayyorlash, ta’lim sifatini oshirish borasida ham ishlar olib borilmoqda.

Аннотация. В статье рассматривается проблема изучения предмета «Медицинская информатика» в высших учебных заведениях. Специфика данного предмета и возможности повышения качества знаний по данному предмету. Также дается краткая история возникновения данного предмета в Узбекистане и развития предмета «Медицинская информатика» как

отдельного направления. Также проводятся исследования подготовки школьников и студентов к изучению данного предмета и повышения качества образования.

Key words.medical informatics, problems of medical informatics, programs, research

Ключевые слова. медицинская информатика, проблемы медицинской информатики, программы, исследования

Kalit so'zlar. tibbiy informatika, tibbiy informatika muammolari, dasturlar, tadqiqotlar

Introduction. The transformation of society from simple to informational began in the middle of the 20th century. This affected not only the adult population, but also children in general. If we consider the information sciences as teaching, then they develop more rapidly against the background of other sciences, and mastering them today is a guarantee of a person's success in modern society. One feature of these sciences is that for a person working in this area there is no limit to perfection. Therefore, this science was introduced into the main set of sciences that students should master at school, colleges, higher educational institutions, and then develop their skills throughout their lives. Since this science permeates all sciences at the present time, it is the fundamental science of the modern individual. [2]

One of the areas of information technology is a specialized area - medical informatics. This scientific discipline is engaged in the study of the processes of obtaining, transmitting, processing, storing, distributing, presenting information using information technology and technology in medicine and healthcare.

With the advent of this new direction, there were also problems of training. Competent correlation of knowledge of computer science and medicine. Assessment of the degree of complementarity of these sciences.[3]

Research Methodology. Uzbekistan, as a developing state, also took part in the information boom. The State Program for the implementation of the "Action Strategy for the Five Priority Areas of Development of the Republic of Uzbekistan in 2017-2021" outlines the introduction of the concepts of "Smart Medicine" (Smart Medicine) and the "Center for Unified Medical Information", which should ensure early detection and remote prevention of diseases , as well as the creation of additional conditions for the growth of life expectancy and the reduction of morbidity and mortality rates using modern technologies for remote consultation of patients and early diagnosis of diseases in remote areas of the Republic.Measures for the development of technical requirements and the development of a draft regulatory document for the implementation of «Smart Medicine» and the «Center for Unified Medical Information» were approved in paragraph 2 of the roadmap for the execution of the appeal of the President of the Republic of Uzbekistan Sh.M. Mirziyoyev to the OliyMajlis of the Republic of Uzbekistan dated December 22nd 2017. Medical informatics has become an indispensable element in the education and subsequent activities of a doctor, which led to the creation of specialized departments and courses in higher medical schools. [1]

When did the direction «medical informatics» originate in Uzbekistan?

Since the mid-60s of the XX century, the main conceptual provisions have been formulated, which formed the basis for the development of the process of introducing information technologies (informatization) in healthcare, the first projects for all levels of industry management have been implemented. In particular, in 1966, the Institute of Cybernetics of the Academy of Sciences of the Uzbek SSR was established, headed by Academician V. Kabulov, which served as an impetus for the development of «Medical Informatics in Uzbekistan.» The period from 1975 to 1985 can be characterized as the time of the creation of the state system for organizing and coordinating work on the introduction of computer science methods and computer technology in practical medicine, the creation of territorial medical

information and computing centers in the regions (currently - medical information and analytical centers) subordinate to the regional health authorities. In the mid-80s, for a clearer coordination of the development of computer technologies in healthcare at the regional level, the Board of Directors of Information Computing Centers (ICC) was created, which for a long time was successfully headed by Professor G.I. Chechenin. By the mid-90s, the need for informatization of the industry was no longer in doubt at all levels of healthcare management. As this science developed, new terms were born, such as:

- medical computer science, computing medicine, medico-electronic data processing, medico-automated data processing, medical information processing, medical information science, medicine and engineering equipment and medical computer technology, telemedicine.

At a conference on the history of Medical Informatics held in Prague in April 2013, George Michalas outlined the following stages of development:

a) Medical information at an early stage before 1975:

pioneering work of scientists, extensive work on analog information signals, laboratory applications, first attempt at solution support, databases, modeling and simulation of biological processes, biostatistics;

b) Development of MI (1975 -1990): creation of international and national organizations, allows to systematize the main areas of MI, first specializing in the development of methods, medical history, health information systems (HIS), support for advanced solutions port-Expert systems;

c) Consolidation of MI (1990-2000): Singling out this science as an independent discipline. It becomes clear that the object of research is medicine; technical information; introduction of hospital information systems (HIS) and new technologies such as telemedicine.

d) Establishment of MI (2000-2010): a clearer definition of e-health an opportunity to solve the main problems of modern health care, the impact of the Internet on medicine; involvement of politicians, expansion of regional, national projects, e-health as a business, MI patient center, the emergence of sub-disciplines: bioinformatics, neuroinformatics, Virtual Physiological Human.

e) Full integration of MI in Medicine and Healthcare (2010-2020):

continuous empowerment, visible steps towards «personalized medicine», improved patient safety, preventive medicine, use of desktop devices, home monitoring system.

This gave impetus to the study of this subject and the introduction of new elements in the education of medical students in higher educational institutions. In accordance with this, it is necessary to change educational programs, starting with the school article. For education to be continuous, that is, there were no omissions and training was carried out according to the algorithm from simple to complex.

The problem of learning lies in the quality of training programs. This issue should be dealt with directly by the teacher of information technologies together with the teachers of medical departments. Working on this problem, studies were conducted on the basis of the secondary school No. 21 of the Tashkent region on the introduction of the study of information technology in the context of the direction of students in grades 10-11. Since a specialized class for the study of information technology was formed at this school.But even in this class, students are divided into small groups according to the interests of studying this subject.

1.Group - students who are preparing for admission to higher educational institutions in the technical direction.

2. Group - students who chose the economic direction.

3. A group of students - entering higher educational institutions of the medical direction.

If we consider the first group of students, then the training program for this group is based mainly on the study of programming languages and related technical means.

Basically, in my study, the emphasis was on students of the third group, since the main idea of the study is a new direction in information sciences, such as medical informatics.

When working with these students, the training program was adapted taking into account the specifics of the chosen direction.

This program is aimed at studying Internet opportunities, studying network building, building sites, and also studying information search engines.

It also included training in the creation of conferences, chats, televised debates.

Work to ensure the protection of information in hyperspace.

Structural possibilities of databases are studied. Working with databases, building spreadsheets.

A comparative analysis of the development of skills of students in a specialized class was introduced with monitoring of the general education class.

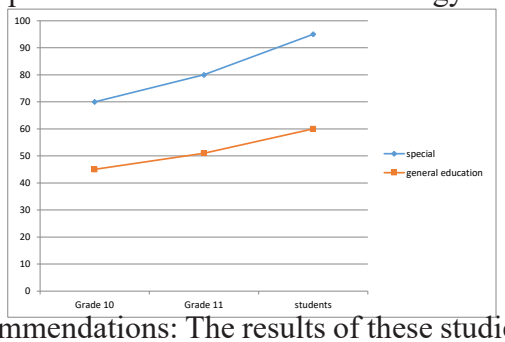
During the study, the following results were revealed:

1. Upon admission to higher medical educational institutions, students show a higher level of knowledge in the subject of medical informatics.

2. Students have better development of computer skills and information systems.

3. They try to apply their skills more in direct profile work.

Diagram of the application of information technology in their work.



Conclusion/Recommendations: The results of these studies show that the study of the subject in medical informatics is an important aspect of the training of highly qualified specialists. Therefore, training programs should interact with each other, which gives a higher learning outcome. The bachelor's program in the context of this subject should be at a higher level, since students in grades 10 and 11 of general education schools must and can master the initial concepts already at school. That will lead to the improvement of the qualifications of graduates of higher medical institutions.

References:

1.E.H. Bozorov, Kh.S. Daliev, Sh.B. Utamuradova, D.A. Karshiev, D.A. Kalandarova, Sh.Kh. Daliev, A.Kh. Ramazanov, Z.Kh. Bozorov «Medical informatics» Publishing house «Fan vatexnologiya», 2019, page 6 [1]

2. «Informatization of the Society»(https://www.sites.google.com/site/efremovajtezuravleva/home/tema-issledovania) [2]

3.Internet Encyclopedia / ed. L. V. Melikhova.
- St. Petersburg, 2001.

4. Computer science. Book 2. Fundamentals of Medical
Informatics: Textbook / Chernov V.P., Esaulenko I.E., Frolov
M.V. and others - M.: Drofa, 2009. - 205 p.

5. Informatics: textbook / ed. Makarova N.V. -M., 2001.

6. Information technology of the territorialmanagement. Specialized issue «Telemedicine».- M.: VNII problems of computer technology and informatization. - T. 40. - 2003.

7. Leontiev V.P. The latest personal computer encyclopedia 2013. - M.: OLMA-PRESS, 2013.

8.Medical informatics (https://postnauka.ru/video/83456)[3]