European International Journal of Pedagogics

TYPE Original Research
PAGE NO. 143-145
DOI 10.55640/eijp-05-05-31

In Medicine Information Technology Science, The Relevance of Education

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OPEN ACCESS

SUBMITED 14 March 2025
ACCEPTED 10 April 2025
PUBLISHED 12 May 2025
VOLUME Vol.05 Issue05 2025

Abstract: In an era characterized by rapid advancements and digital transformation, the integration of education within medicine, information technology, and science has become increasingly critical. This paper explores the pivotal role that education plays in bridging the gaps between these fields, promoting interdisciplinary collaboration, and fostering innovation. In medicine, continuous learning ensures practitioners stay abreast of new diagnostics and treatment methods. In information technology, education empowers professionals to develop solutions that support healthcare and scientific research. Science education, meanwhile, underpins both fields by cultivating analytical thinking and evidence-based decision-making. This interdisciplinary approach not only enhances professional competency but also drives societal progress through more effective health systems, smarter technologies, and robust scientific inquiry.

Keywords: Interdisciplinary education, medical education, information technology, science education, digital transformation, lifelong learning, healthcare innovation, technology integration, scientific literacy, professional development.

Introduction: Digital transformation during information technologies in our lives place day by day increasing In particular , medicine IT (information technology) in the field technologies) not only diagnosis and treatment processes automation , maybe health storage system efficiency increase , medical service show quality improve and population health control in doing important role is playing . This attitude with in medicine information technologies science education relevance exceed is going on. This in the thesis this of

direction scientific and practical basics, relevance, advantages and development prospects is illuminated.

1. Medicine and information technologies integration Modern in medicine information technologies wide in the field for example, electronic medical records (ETK), laboratory information systems (LIS), health storage management systems, digital imaging (PACS), artificial based on intelligence (AI) diagnostics systems, remote medical services (telemedicine) and others. Of these all doctors, nurses, administrators and other medicine employees for big convenience These technologies create medical treatments fast, clear and safe to perform service does.
2. Medical IT in education place Medicine supreme training IT science in their countries teaching through students modern medical technologies mastery, digital health storage in systems independent work to receive This is provided. their professional potential and labor in the market competitiveness increases.

Medical IT science through students :

- Electronic health storage from systems use;
- Information base to conduct and management;
- Statistics and epidemiological information with work;
- Digital to describe and analysis to do;
- Online on platforms patients with work;
- Telemedicine services show according to skills has they will be.

3. **IT** science relevance IT in medicine education relevance one how many factors with is marked:

- Health in storage digitization of the policy increase;
- Medicine in institutions electronic management systems wide current to be completed;
- Quality medical service to show was demand increase;
- Artificial intellect and big data technologies development;
- Pandemic global problems such as because of remote services necessity increase.[1]

4. **IT** science through formable competencies Medicine IT science in the field education as a result following competencies is formed:

- Information Literacy: Medicine information analysis to do, to evaluate and from them use.
- Technical Skills: Medical programs, information systems and devices with work
- Digital Communication: Patients and colleagues with online communication to do
- Privacy and information Security: Personal medical information protection to do
- Innovative Thinking: Technological from the news effective use.

5. **IT in medicine** science education methodology IT in medicine teaching in the process modern pedagogical from technologies use is important. Including :

- Practical Training: Clinical information systems with to work to teach;
- Simulation and virtual environment: Diagnostics and treatment processes modeling;
- Case study: Real situations based on problems solution;
- Project-based Approach: Students independent medical IT projects to create direction;
- Online Platforms: Moodle, Google Classroom, via Zoom interactive lessons to pass.

6. Research in the activity IT Modern medical research big in size statistic and biometric to the information IT science is based on to be trained medicine employees following to aspects prepares:

- Research information assembly and analysis to do;
- Biostatistics programs with performance (SPSS, R, Python);
- Medical information from resources usage (PubMed, Scopus);
- Scientific articles to write and presented to grow;
- Scientific information visualization to do

7. International experience The world developed in the countries in medicine IT to science separately attention For example, in the USA, "Health Informatics", in Germany, "Medical Data Science", in Japan and "Smart Healthcare " areas wide developed. Such experiments Uzbekistan also useful for to be In particular, international online courses, foreign medicine information systems with dating, international scientific in projects participation to grow through local medical IT education quality increase possible.
8. Digital medicine future and IT science place In the future health storage system artificial intelligence, IoT (Internet of Things), genomics analysis, blockchain and other advanced to technologies is based on. Doctors and other medicine employees this technologies to practice they can implement IT science for deep studies demand This is in medicine

information technologies education the issue strategic importance has to the direction turns.[2]

1-photo. Smart medcine

a. Electronics medical records (EHR/EMR):

- **Example:** Doctor the patient's disease history, laboratory results and treatment plans computer through vision.
- **Benefits:** Quick for information entrance and mistakes reduce

b. Telemedicine:

- **Example:** Village in place patient in the city doctor with video call through advice takes.
- **Benefits:** Far quality in the regions medical from service use opportunity.

c. Digital Prescriptions (e-Prescription):

- **Example:** Doctor the recipe on paper without writing, directly to the pharmacy electronic in the form sends.
- **Benefits:** At the pharmacy wrong understanding or fake recipes probability reduces.

d. Health monitoring devices with related systems:

- **Example:** Heart beat or blood pressure smartwatches that track and they through doctor from the situation aware to be
- **Benefits**: Permanent observation and early warning opportunity.

e. Medical information analysis to do systems:

- **Example:** Diseases spread or statistic information automatic analysis to do
- **Benefits:** Health policy in planning help gives .

CONCLUSION

In medicine information technologies science education health storage system digital transformation provision, medical services quality increase and modern experts in preparation important factor IT science is education to the process wide current to be through medicine progressive directions develops, patients life quality improves and health storage system stability Therefore, this science is medical of education inseparable part as separately attention and approach demand will reach.

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