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UNDERGRADUATE MEDICAL COMMUNICATION TRAINING BY MEANS OF INFORMATION AND COMMUNICATION TECHNOLOGIES IN THE USA AND UKRAINE

ABSTRACT

The US medical schools are characterized by a significant progress in the usage of information and communication technologies for professional purposes and communication skills development. This advance was influenced by a sequence of social, academic, technological and financial conditions, namely: permanent research in the branch of modernization of higher medical education; application of a student-centered approach in education and patient-centered approach in clinical practice; physician-patient interaction skills development and their evaluation during clerkships; implementation of the subjects aimed at communication training into the undergraduate curricula; technological progress and implementation of ICTs in undergraduate clinical and communication training of future doctors. A profound analysis of the state of ICT implementation for professional communication skills development in Ukraine and the USA has showed hardly any common features. Thus, the process of ICTs application is advanced in medical schools of the USA and still challenging in Ukraine. In the USA communication training involves mainly virtual patients and in our country this training is more theoretical and applies university web-sites, on-line learning courses and social media learning sources. Material and technical as well as complicated political and economic conditions of higher medical institutions in Ukraine are established as the most significant factors that influence domination of the US universities over ours. The article states that determined progressive ideas of American experience in the scope of ICTs application for medical communication skills development should be considered in order to improve and modernize this process in our country.

***Keywords*:** *higher medical education, undergraduate medical education, Ukrainian medical education, medical student, the US medical school, information and communication technologies in medical education.*

INTRODUCTION

Educational modernization in Ukraine is known as a key aspect of strategic national development. In higher medical education it is mainly associated with improvement of the quality of professional training and implementation of innovations into the academic process. The main directions of undergraduate medical education include the development

of professional competencies in practical clinical issues and communication as well as the usage of information and communication technologies (ICTs) for this purpose. The US medical schools are characterized by significant progress in this direction. The main goal of undergraduate medical training in the USA is education of highly-qualified physicians able to provide effective physician-patient interaction during medical encounter. Currently, this process has involved modern technologies. However, the US medical schools had to overcome a long and complicated process of computerization in the scope of undergraduate communication training. Their priceless experience has to be learnt and considered in order to prevent from many false or unconsidered actions that interfere with the process of modernization in Ukraine. Thus, a comparative analysis of peculiarities of higher medical education in these two countries is of utmost importance.

THE AIM OF THE STUDY

The paper aims at performing a comparative analysis of undergraduate communication training by means of ICTs in the US and Ukrainian higher medical education institutions. It describes the underlying conditions and the state of ICTs implementation in medical schools of the USA and Ukraine; highlights the progressive ideas of American experience in the scope of ICTs application for medical communication skills development in order to improve and modernize this process in our country.

THEORETICAL FRAMEWORK AND RESEARCH METHODS

A study involved the application of a set of theoretical research methods. It describes, structurizes, generalizes and analyzes both American and Ukrainian theoretical and practical experience in ICTs implementation for undergraduate communication skills training; discusses and supplements previous scientific research on the problem. The importance of communication skills in medical practice as well as their development throughout undergraduate educational period is proved by numerous scientists. Thus, C. Boelen (2002), K. DeZee (2012), M. O'Connell & J. Pascoe (2004) dedicated their studies to the aspects of modernization in higher medical education; L. Mauksch (2013) analyzed and determined required communicative competencies for physicians; M. Bearman (2001), D. Cook (2008), P. Dev (2009), R. Kamassali & B. Ladak (2013) researched the ways of computerization in communication training. Studies of V. Artiomenko (2015), S. Riznychok (2015) and our papers (Manyuk, 2016) describe Ukrainian experience of communication skills development at higher medical education institutions. Information on current state of communication skills development was found and studied on the web-sites of the US medical schools.

RESULTS

The analysis of scientific evidence on the professional undergraduate medical communication training by means of ICTs at US universities has revealed underlying *social, academic, technological and financial conditions* which anticipated this process.

Thus, *the first* of them concerns the research in the branch of higher medical education, namely the improvement of its quality by actualizing university curricula and syllabi. Numerous ideas on innovation and their possible effectiveness were profoundly and durably studied, discussed and analyzed at many conferences or summits (Boelen, 2002). It has led to the development of powerful conservative system of higher medical education characterized by stability, productivity, competitiveness and high quality of professional training which is proved by first positions of medical education institutions of the USA in world famous ratings by the criteria of university admittance, medical research and service (Bearman, Cesnik & Liddell, 2001).

The second condition refers to modern reforms in US higher medical education caused by increased social requirements to medical service. They led to the development of student-centered approach in medical education and patient-centered approach in clinical practice.

The third condition is associated with the development of technologies, increase of social computer literacy and implementation of ICTs into medical education and practice. The later is one of the most important factors influencing current educational changes (DeZee, Artino, Elnicki, Hemmer & Durning, 2013).

Listed above conditions caused the necessity and triggered undergraduate communication training of future physicians. This process is directed at the development of skills required for proper interaction with a patient during medical encounter. Nowadays, this training lasts throughout all undergraduate period at US medical schools (Boelen, 2002, p. 592). Besides, implementation of subjects aimed at the formation of communicative competencies results from permanent scientific and methodical research highlighting required communicative skills, their analysis and systematization as well as explanation and standardization of evaluation methods (Mauksch, & Greer, 2013). Thus, it is determined as *the forth* condition which anticipated professional undergraduate medical communication training by ICTs.

The fifth condition refers to gradual process of ICTs implementation in higher medical education. It means that, these technologies have been used since they have appeared on the educational market. However, such ICTs as virtual patients (VP – computerized models of medial encounter (Manyuk, 2016) were primarily used for the clinical skills training. Later, they gradually proved their effectiveness as the tools of interaction and communication skills improvement (Dev, Hoffer & Barnett, 2009).

The application of electronic learning tools into communicative training encourages the search for methods of their effective use which is *the sixth* condition. Currently, electronic and mobile learning tools have been implemented as the components of informal curriculum. These technologies include mainly online courses, virtual patients and social media (Cook, Levinson, Garside, Dupras, Erwin & Montori, 2009).

Thus, the systemic analysis of American experience indicates the adherence to the certain didactic principles that led to the grounded and effective implementation of ICTs into higher medical education. These principles include scientific, systemic and methodical, preventive and predictive ones. They are associated with continuous research, gradual implementation, considering the risks and possible learning outcomes.

In general, there are more different features in higher medical education of the USA and Ukraine than common ones. The common or similar ones include preclinical and clinical training in undergraduate years; modernization of educational process; development of virtual universities and online learning tools; attempts of mobile learning use in the process of professional medical training. The main differences comprise: the period and structure of higher medical education, duration and content of clerkships, standardized communication training throughout all university years; number of elective courses; state of ICT implementation for clinical and communication training; quantity and quality of studies investigating methods of modernization in higher medical education.

A profound analysis of the state of ICT implementation for professional communication skills development in Ukraine and the USA has showed hardly any common features. Thus, in the USA communication training is performed by such e-learning tools as virtual patients. They appeared to substitute standardized patients (SP)

which have been used in educational system of this country for many years. A standardized patient or simulated patient is an individual, who was trained to act as a real patient in order to reproduce certain medical problems. However, despite many advantages SP have some disadvantages including physical and psychological features (fatigue, predisposition etc.) that hinder the simulation of a clinical condition. By means of virtual patients students receive unlimited time and attempts to practice physician-patient communication, while teachers apply their standardized tools for the evaluation of communication skills.

In Ukraine communication training by ICTs is more theoretical than practical. The university curricula include the subjects directed at the improvement of communication skills in Ukrainian and English by such tools of electronic learning as university web-sites, on-line courses and social media learning sources (Manyuk, 2016). Virtual patients available in simulation centres are currently used for clinical skills development. Their implementation for communication training is both promising and challenging for our country as it requires significant financial and methodical background.

Material and technical conditions of higher medical institutions in the USA and Ukraine is the most significant factor that influences domination of the US universities over ours. The presence of the newest computerized, highly technological simulation centres equipped with modern devices and virtual patients as well as high speed Internet favour their application during undergraduate communication training of physicians in the USA (Stanford Medicine, 2018; Yele School of Medicine, 2018). Due to complicated political, economic and financial conditions Ukrainian medical universities have been behind the technological development, however in present much progress is associated with modernization of undergraduate clinical and communication training, namely: there are six simulation centeres; most classrooms are equipped with multimedia and interactive technologies; universities are developing there virtual online learning platforms (Artiomenko, Shandra & Semchenko, 2015).

A possible strategic direction for both countries concerns the implementation of mobile technologies in the academic process. Almost all students use mobile devices with the access to the Internet. It can serve as the solution of the problem associated with material and technical provision which prevents from proper modernization in our country. However, in addition to the availability of mobile devices, mobile learning (m-learning) requires qualitative software and special learning tools that is a problematic issue for both American and Ukrainian educational systems (Kassamali & Ladak, 2013). Digital technologies are developing very rapidly. Ideally, their application in the academic process should be performed at the same or even higher rate.

The web-sites of the US medical schools are adapted to mobile usage. They developed mobile apps for different platforms. It improves the access to learning information available on university learning platforms and web-sites. The development of applications for the mobile devices is a significant aspect of actualization of the subject "Medical informatics" in the USA. One of new academic tasks is to train professionals able to develop mobile apps for their clinical purposes and communication needs. It should be noted that in our country the departments of medical informatics have a leading position in the formation of online bases of biomedical information and application of ICTs in educational process (Riznychok, Ilkanych & Boiko, 2015).

A slowed progress in mobile learning could be encouraged by the usage of apps that are fee, while a great number of mobile apps in English and their poor quality in other languages cause the necessity of competencies in English language (Kassamali & Ladak,

2013). Fluency in foreign languages is considered the key competency for future physicians in our country. Ukrainian medical students improve their linguistic skills throughout all period of undergraduate education. They study one of the foreign languages as a compulsory subject during three terms of the first and the second years and also can choose it from the list of elective courses in all years of study.

In general the content of communication training differs in higher education institutions of Ukraine and the USA. According to the analysis of the curricula of the US medical schools the development of communication skills primarily involves preparation for the physician-patient interaction while in our country it is aimed at the development of competencies in languages and culture.

The humanitarian and cultural subject matters are not included in the compulsory curricula of the US medical schools. They are considered to have a secondary importance, thus they are proposed as elective courses. Communicative training is associated with a big amount of practical training with patients in all undergraduate years. Basically, the structure and content of practical training (clerkships) in Ukraine and the USA has many common features. It includes the following: four blocks of clerkships; clerkships in internal medicine, surgery, pediatrics, obstetrics and gynecology; increased attention to communicative and ethical culture of medical students during clerkships. The main differences comprise: the amount of practical training; standardized evaluation of practical communication skills. They are evaluated by test control, standardized and virtual patients (O'Connell & Pascoe, 2004). The evaluation criteria include ability to communicate verbally and non-verbally; ability to express empathy; skills of time planning and management etc. This direction is still challenging for our country. Theoretical and practical issues of professional communication in medicine are evaluated by the means of oral or written test control in Ukrainian higher medical education institutions.

As the result of comprehensive analysis we have determined some progressive ideas of the US medical schools and colleges that can be considered and implemented in order to develop communication skill training of future physicians in Ukraine. The ideas include: conducting the research in methodology of communication training and evaluation in the period of clinical training and clerkships; development of the curricula and syllabi partly directed at the development of professional communication skills; training future physicians for communicative interaction with patients; teaching communication during clerkships; development of proper evaluation methods and criteria and providing evaluation of communicative skills; increasing the period of clinical training with real patients; implementation of ICTs in higher medical institutions, namely simulating and virtual reality as well as mobile technologies with the aim of clinical and communication training; application of social media for communication skills development; development of mobile learning tools and their application in the process of communication training.

CONCLUSIONS

Undergraduate communication training by means of ICTs in the US and Ukrainian higher medical education institutions was influenced by a sequence of *social, academic, technological and financial conditions*, namely permanent research in the branch of modernization of higher medical education; reforms that provided a student-centered approach in education and patient-centered approach in clinical practice; actualization of academic process in order to develop communication skills required in future carrier; focusing on physician-patient interaction skills and their evaluation during clerkships; implementation of the subjects directed at communication competence into the undergraduate

curricula; technological progress; implementation of ICTs in undergraduate clinical and communication training of future doctors. The state of ICTs implementation is advanced in medical schools of the USA and challenging Ukraine. Thus, progressive ideas of American experience in the scope of ICTs application for medical communication skills development should be considered in order to improve and modernize this process in our country.

Received research results indicate the requirement of further profound studies on the subject; development of online learning tools for communication skills development; providing guidelines for their efficient application in the undergraduate process of higher medical education.

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