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DIDACTIC ASPECTS OF PHARMACY STUDENTS' TRAINING AT UK UNIVERSITIES

ABSTRACT

The article discloses didactic aspects of pharmacy students' training at UK universities. To begin with, the article shows that one of the main objectives of medical education in the UK today is to prepare students for conscious participation in social life and health care via various forms of teaching and learning. Future pharmacists should be able to adapt to rapid social changes and practically assess the current situation to discover ways to improve it due to their area of expertise. Besides, the article indicates that the UK adheres to the internationally recognized global standards for medical education and aims to develop the professional elite of pharmacists. The following technologies are relevant for medical education in the UK and, especially, pharmacy students' training: problem-based learning, team-based learning, teaching with simulation, teaching with practicals and labs, teaching with technological tools. Importantly, the article proves that interactive learning eliminates the boundaries between instructors and students and, therefore, strengthens their educational partnership. In this regard, medical education is becoming a turning point in the ongoing transformation of future professionals as the focus is on interactive pedagogy. The article concludes that the transition from passive to active learning, which lies in the dialogization of knowledge transfer, is becoming a priority in the UK's medical education and, in particular, in the professional training of future pharmacists. Further research should attempt to find ways to improve the professional training of future pharmacists under the internationally recognized standards to strengthen the competitiveness of Ukrainian medical education, as well as optimize conditions for international mobility of medical students in both Ukrainian and international labour markets.

***Keywords*:** *pharmacy student, didactic aspects, training, the UK, university, technology.*

АНОТАЦІЯ

Статтю присвячено дидактичним аспектам професійної підготовки майбутніх фармацевтів в університетах Великої Британії. Визначено, що сучасна вища медична освіта цієї країни спрямована те, щоб за допомогою різних форм навчання й виховання підготувати студента до плідної творчої участі у житті суспільства і діяльності в сфері охорони здоров'я. Сучасний фахівець-фармацевт

повинен уміти не лише адаптуватися до стрімких соціальних змін, але й практично оцінювати те, що відбувається і знаходити шляхи подальших перетворень у сфері діяльності й у своєму житті. З'ясовано, що у Великій Британії підготовка майбутніх фармацевтів здійснюється відповідно до світових стандартів і полягає у формуванні професійної еліти суспільства. Актуальними для вищої медичної освіти у Великій Британії є такі технології: технологія проблемного навчання, технологія командного навчання», технологія навчання за допомогою моделювання, технологія практичного навчання в лабораторіях, технологія навчання за допомогою технічного інструментарію / технічних засобів. Доведено, що під час інтерактивного навчання межі між викладачем та студентом стають менш визначеними. Крім того, медична освіта стає переломним етапом професійно-орієнтованої трансформації, оскільки основну увагу зосереджено на педагогіці інтерактивного навчання. Підсумовано, що пріоритетним в медичній освіті Великої Британії, зокрема професійній підготовці майбутніх фармацевтів, стає перехід від пасивного до активного навчання, що передбачає діалогізацію процесу передачі знань. Перспективи подальших наукових розвідок полягають у поліпшенні якості професійної підготовки майбутніх фармацевтів відповідно до світових і загальноєвропейських стандартів з метою посилення конкурентоспроможності вітчизняної вищої медичної освіти, оптимізації умов для міжнародної мобільності студентів-медиків на вітчизняному та міжнародному ринках праці, що зумовлені проголошенням Україною курсу на євроінтеграцію.

Ключові слова: *студент-фармацевт, дидактичні аспекти, підготовка, Велика Британія, університет, технологія.*

INTRODUCTION

One of the main objectives of medical education today is to prepare students for conscious participation in social life and health care via various forms of teaching and learning. Future pharmacists should be able to adapt to rapid social changes and practically assess the current situation to discover ways to improve it due to their area of expertise. In this regard, medical education should create conditions for developing open-minded professionals, who are competent and competitive in the labour market, have good communication and empathy skills and, most importantly, can understand the needs of their patients.

Given the specifics of the research problem, one should pay particular attention to the UK experience in this area. Indeed, the country adheres to the internationally recognized global standards for medical education and aims to develop the professional elite of pharmacists. Besides, the rankings of UK universities, as well as their popularity among applicants from both Western and Eastern Europe remains rather high.

THE AIM OF THE STUDY

The article aims to disclose didactic aspects of pharmacy students' training at UK universities.

THEORETICAL FRAMEWORK AND RESEARCH METHODS

A theoretical analysis of relevant scientific sources shows that professional training of future pharmacists in the UK largely relies on the technologies that introduce the fragments of professional activities into the educational process (Albanese, & Dast, 2014; Austin, 2004; Barrows, 1986; 1996; Brown, 2003; Cassidy, 2004; Cassidy, Ziv, Mehta, & Feeney, 2003; Catto, 2000; Cook, 2014; Curry, 1991; Cooper, & Taqueti, 2008; Dolmans,

Wolfhagen, Grave, Willem, & Vleuten, 2005; Gaba, 2004; Merrill, 2002; Nicholas, 2014; Parmelee, & Al-Kadi, 2014; Romero, Eriksen, & Haworth, 2004; Vaughn, & Baker, 2001; Webb, Vetter, & Brasel, 2014; Ziv, Wolpe, Small, & Glick, 2003).

After all, the involvement of pharmacy students in such activities at all stages of professional clinical practice acquaints them with the main aspects of medical training to deal with different professional tasks. At the same time, it is essential to reinforce this training with cognitive and simulation-modelling activities, as well as enough hours allocated for real practice.

In the UK, professional training of future pharmacists also incorporates interactive technologies, which ensure the subject-subject interaction during the educational process. In particular, interactive learning involves using didactic and role-playing games; modelling professional tasks; creating, solving and analyzing problematic situations; writing clinical scenarios; using clinical cases. The main principle of interaction lies in the constant cooperation and communication between students, while university teachers only organize and coordinate this interaction.

As noted by Catto (2000), it is vital to maintain the connections between health care, professional education, and regional development (p. 636). One can understand how medical schools respond to different challenges if there is an agreement between the opportunities and dangers modern medical education is facing nowadays (Catto, 2000, p. 634).

Given the above, research methods involve analysis, synthesis, generalization, and systematization.

RESULTS

To begin with, *problem-based learning (PBL)* is indeed relevant for medical education in the UK. PBL was first used at McMaster University almost 40 years ago to replace a traditional lecture-based instructional approach in many medical schools. It can be described as a technology that uses a patient's problems as a context for students to apply practical knowledge about basic and clinical sciences. PBL is realized in small groups, in which the instructor acts as a facilitator. The role of the facilitator lies in building PBL around the required professional knowledge. Some medical schools apply two curricula, namely, one for a traditional lecture and the other for a PBL lecture. Also, there has been a trend towards a comprehensive “hybrid” curriculum. In this regard, the scientific literature offers various ways of PBL implementation.

Even though PBL varies from school to school, Dolmans et al. (2005) identify the three main characteristics of such learning: problems as an incentive to learn; instructors as facilitators; group work as an incentive to interact. They describe the organization of PBL as follows: outlining the general problem; introducing an interdisciplinary approach; solving the instructor’s problem; specifying current objectives when solving the problem; maintaining sufficient complexity that agrees with the level of students’ previous knowledge; summarizing discussions on the problem to promote learner autonomy, develop students’ clinical thinking and structurize their knowledge in useful contexts. According to Novak, Shah, Wilson, Lawson, & Salzman (2006), the only problem with PBL may be multiple solutions and multiple sources available to students. Regarding healthcare education, Wood (2003) believes that once clinical material has been presented as the stimulus for learning, students will “understand the relevance of underlying scientific knowledge and principles in clinical practice” (p. 328).

Regarding *team-based learning* (*TBL*), it is based on student collaboration in large groups. TBL can be defined as a strategy of pedagogical support to students by an expert, or as an interactive and analytical strategy. Such learning involves group activities with one or more experts, after which students are divided into small groups to solve certain analytical problems during classroom hours. It must be noted that TBL requires student preparation out of class and application of the acquired knowledge in class. There are the following three stages of TBL that can cover one or more classes: 1) preparing students for TBL; 2) boosting their motivation towards it; 3) implementing TBL. An important aspect of this technology is team building. It considers the level of students' preparedness, practical experience and organization skills so that the levels of teams can be approximately identical. Besides, the instructor should consider which knowledge base will be best distributed in the teams. Given an increasing amount of research being done in this area, TBL is seen as rather effective.

In the UK, medical schools also actively implement *teaching with simulation*. This technology is used in all areas of medical education, including medical training programmes and scholarship programmes. After all, the integration of professional knowledge in pedagogy, medical education and medical modelling is important for both non-medical and medical educational institutions. Modelling creates a favourable educational environment for students, as well as improves their critical thinking, problem-solving and decision-making skills. In turn, it makes it possible to combine basic and clinical sciences and apply such knowledge in realistic, low-risk situations.

Teaching with simulation also involves the use of medical simulators or devices that represent a simulated patient and allow the instructor to supervise students' actions (Gaba, 2004, p. 2). Cooper, & Taqueti (2008) summarize the following simulation characteristics identified by Gaba (2004):

– verbal (role-playing); standardized patients (actors);

– part-task trainers (physical; virtual reality);

– computer patient (computer screen; screen-based "virtual world");

– electronic patient (replica of the clinical site; mannequin based; full virtual reality), p. 11.

Even though medical modelling accumulates different technologies, the term "simulator" is commonly used to refer to the technologies used to imitate tasks. Simulators allow students to practice procedures as often as needed to achieve knowledge without harm to the patient (Ziv, Wolpe, Small, & Glick, 2003, p. 784).

Nowadays, medical simulators are mostly used to acquaint students with therapeutic and diagnostic procedures, as well as improve their understanding of medical concepts and medical decision-making. Besides, special mannequins, as more complex simulators, can be used to teach students to provide medical consultation. Such simulation often involves 3D computed tomography or magnetic resonance imaging (MRI) to scan patient data to ensure the reality of the situation. Active models that attempt to reproduce living anatomy or physiology are the latest developments in medical pedagogy. The famous Harvey mannequin, developed by Dr Michal Gordon of the University of Miami Medical School, can display various physical findings. These include blood pressure by auscultation, bilateral jugular venous pulse wave forms and arterial pulses, precordial impulses, and auscultatory events in the four classic areas (Cooper, & Taqueti, 2008, p. 13).

Unfortunately, over the past 50 years, there has been an increase in the amount of time allocated to lecture-based learning and a considerable reduction in laboratory training. As noted by Webb, Vetter, & Brasel (2014), *teaching with practicals and labs* is one of the

forms of active learning that involves students in the actual medical activities and subsequently motivate them to reflect on the gained experience. The scholars claim that "laboratory teaching requires a change from teacher-focused lecturing to student-focused learning" (Webb, Vetter, & Brasel, 2014, p. 91). In turn, it increases students' interest, attention and helps strengthen their knowledge and skills.

Even though no technology of medical education can replace an experienced teacher, the UK experts actively promote *teaching with technological tools.* They develop effective teaching methods and projects based on education computerization (Cook, 2014). Teaching with technological tools includes computer-assisted learning (CAL), just-in-time learning, presentation software and multimedia (graphics, animation, audio, video).

Merrill (2002) determines some prescriptive principles common to various theories of instruction in the context of medical training. They are the following:

1. Learning is promoted when learners are engaged in solving real-world problems.
2. Learning is promoted when existing knowledge is activated as a foundation for new knowledge.
3. Learning is promoted when new knowledge is demonstrated to the learner.
4. Learning is promoted when new knowledge is applied by the learner.
5. Learning is promoted when new knowledge is integrated into the learner's world (Merrill, 2002).

Thus, one can see that the use of different interactive technologies in medical training increases students' engagement, attention, and motivation during classes. Interactive learning eliminates the boundaries between instructors and students and, therefore, strengthens their educational partnership. In this regard, medical education is becoming a turning point in the ongoing transformation of future professionals as the focus is on interactive pedagogy. Besides, an interactive model of learning involves active use of online resources and applications which allows students to learn asynchronously at a pace that meets their individual needs. Such flexibility makes it possible to segment a constantly growing amount of knowledge and explain the basic concepts engagingly and interactively.

CONCLUSIONS

Thus, one can see the transition from passive to active learning which is becoming the priority in medical education. The UK, as well as other developed countries, has globalized knowledge and "scientific" industry. The use of interactive educational technologies (problem-based learning, team-based learning, teaching with simulation, teaching with practicals and labs, teaching with technological tools) has helped to break down barriers in space and time, create new forms of pharmacy students' training, change teaching methods and, in particular, give preference to interactive methods. It proves that professional training of future pharmacists in the country is aimed at ensuring the subject-subject interaction during the educational process with the help of didactic and role-playing games, modelling professional tasks; creating, solving and analyzing problematic situations; using clinical cases. The main principle of interaction lies in the constant cooperation and communication between students, while university teachers only organize and coordinate this interaction.

Further research should attempt to find ways to improve the professional training of future pharmacists under the internationally recognized standards to strengthen the competitiveness of Ukrainian medical education, as well as optimize conditions for international mobility of medical students in both Ukrainian and international labour markets.

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