INTERACTIVE MODELS IN UNIVERSITY TEACHING: APPLICATION IN PHARMACY EDUCATION

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Abstract

The research deals with the constant seeking of academic staff to improve the quality of higher education. The issue in defining the most successful approach resides in monitoring and assessment and the ability to reach the highest levels of student participation and ownership of learning. The third generations of universities or the universities of tomorrow strongly vouch for a participant-centered environment (PCL) in all fields of education, making the approach cross-disciplinary. The issue has been explained upon the backdrop of the undergraduate education in pharmacy, as a domain where the concept of active and lifelong learning is crucial through interdisciplinarity, as a contemporary image of the pharmacist in the 21st century. A program that has been exemplified is the credit transfer system introduced in Macedonian Universities in the attempt to delve deeper into student constant participation and enable teaching staff constant monitoring. The drive for such a research is to talk about programs that work and to single them out in terms of functionality thus propose a proactive approach towards interactive teaching and learning. The finish line represents creating a classroom where both teaching staff and learners are mutual stakeholders, thus learning will represent an exchange.

Keywords: interactive models of teaching, PCL, undergraduate, pharmacy, lifelong learning, interdisciplinarity, credit transfer system

1. Introduction

Improving the quality of teaching in higher education is a current issue that can be researched from several aspects (Weimer 2003). Even with the introduction of the credit transfer system, characterized by a high level of student participation in the realization of the teaching (constant monitoring and a contemporary way of assessment), as well as significant improvements in the efficiency and quality of teaching, it seems as if the process of realization still has secondary meaning, at least from the aspect of interest for its advancement Oyler, D.R. *et al*. 2016).

Furthermore, there are many issues of a universal nature that are left open, including the universality of the teaching itself (Anderson 2000; Armstrong 1999). Additionally, the issue of the undergraduate pharmaceutical education is of great significance. The picture of the pharmacist of the 21st century consists of huge amount of knowledge, but also of personal skills, as communication, critical thinking, problem-solving, ability for team working and perception of lifelong learning. These goals could not be achieved only by traditional class lectures and it is necessary to employ active learning, in the undergraduate and in the lifelong learning (LLL) programs, as well (Anderson 2008; Petit *et al.* 2008). Through the introduction of interactive didactic models, it is expected from the students to be highly active, in combination with a continuous monitoring of their advancement (Baloche 1998; Vail 2002). The interactive models provide a way of working with students, yet at the same time they represent models for practical work. Active approach in learning is more demanding for the students, in the way that they have to accept responsibility for their learning (Gleason *et al*. 2011).

2. Aim of the paper

The aim of this paper is to present and discuss the interactive models in university teaching as the open systems that are constantly improving in the direction of suitability of the needs of the practice and of the students. Due to the universality of the basic didactic concept, one of the ideas is for them to become generators, i.e. self-explanatory examples for support of the interaction in the higher education through the development of a variety of profiles. The possibility of the application of these models in pharmaceutical education was also discussed.

3. Interaction as a didactic category

As a result of the increased volume of knowledge, the ever larger amount of information, as well as the changes in the technology of the working process, nowadays every single profession in the modern world is faced with the need for a different way of education. Teachers are faced with the challenge to "deliver" a bigger volume of knowledge in finite periods of time - semesters (Bennett *et al*. 1991; Careter *et al*. 1994). This is true as well for the profession of a pharmacist, especially for reasons that it requires developing a wide spectrum of knowledge, abilities, and skills (Pavlović-Breneselović *et al.* 2000). The normatively defined answer to the question regarding the characteristics of a successful pharmacist, is in fact a static one, because it defines the desired characteristics of a pharmacist, the necessary bank of knowledge, and the possession of many skills. The first requirement is self-consciousness, consciousness for the practice that is being realized, planning, analyzing, thinking, evaluating, and changing the practice accordingly (Muijs 2006). The education in this country is mainly based on one dominant educational method, in which the learning is understood as transmission of knowledge. The lectures, tutorials, observations, and presentations roughly seem to be the only work methods. The observation extends to pharmacy education, as well. In the literature, this teaching approach is described as "bulimic learning", meaning that the students memorize information and forget most of them after the exam or other evaluation (Zorek 2010).

However, some research data demonstrates that the future pharmacists show different preferences towards the work methods that are used in the duration of their initial education, such as: group discussions, tutorials, practical exercises, work in small groups, problem-solving activities, etc. According to this research, "lectures are not counted even among the top ten most desirable methods of education" (Wolfe 1996).

Until now, in our practice the examples of using the interactive models in the education of future pharmacists were far more present as separate cases or as an application of individual interactive models, so that it cannot be referred to as using a wholesome strategy for interaction. The interactive teaching is realized through the application of different types of activities and interactive methods of

work, consisting of the following components: *preparation*, *realization*, and *support* (Tomevska-Ilievska 2015).

Interactive teaching means: "exchange (of experiences, knowledge, and needs on a horizontal and vertical level); connecting with one's own experience and practical action (starting with experience, analysis of experience and practical actions, using and change of the practice); and cooperation and partnership (cooperative learning, a relationship based on equality, complementariness, competence, respect, and democratic procedure)" (Diamondstone 1980).

The educational actions depend on the context, how the individual interprets the immediate situation in which they act, as well as the broader context, or the social (cultural) context in which they live. The creation of the program for interactive teaching should be done as a team, and the members of the team should determine topics or ideas that will be realized in practice, and which will be acceptable for certain organizational needs and requirements. On the other hand, though, students too should have influence on the programs and topics that will be beneficial for their professional development (Wolfe 1993).

4. Implementation of interactive approach in teaching and learning

Hence, it is quite useful for a questionnaire of assessment to be done, in regards to the manner of conducting university teaching. It should be created in such a way that through it the participants can convey their different educational needs, attitudes, and ideas. The efficient program for interactive teaching also includes the process of mutual planning. In addition, the activities that are being performed in the duration of the teaching become even more efficient, so long as the students are included in the process of planning of aims and activities (Vail 2002). The teaching process, which the students have planned out as well, thus gains in significance and they then have higher motivation for accepting teaching.

An encouraging environment is yet another requirement for conducting efficient interactive teaching. In such an environment there exist proper cooperative relationships among the students, thus advancing the process of application of the learned material. On the other hand, implementation of new learning environment seems to be necessary, because today's students are the generation familiar with Internet, mobile and interactive technologies (Blouin *et al*. 2009). This so called 'internet generation' or 'millennial generation' prefers to use these technologies to learn interactively, rather than to be passive listeners in the classroom (Prensky 2001; Oblinger 2005).

There is no such thing as efficient teaching without clearly defined goals. As long as the goals are more specified and clearer, and as long as the results from the teaching are well planned out, then the chances for greater achievements increase. The aims should be directed towards the knowledge that needs to be achieved, as well as the attitudes, skills, and application of the learned material in practice.

The teaching methods should always be compatible with the results planned. Research has shown that the different aims of the teaching lead to different degrees of change for students[1].

"Those aims that are connected with the process of acquisition of knowledge require the least of changes on the part of the students, while the application of the acquired knowledge in the process of work requires the most complex of changes" (Walsh 1997).

[1] The curricular movement insists that the aims of learning be classified according to the degree of complexity. The base is taken to be the behaviouristic taxonomy. In fact, the aim of learning is for the students to change their attitude in the following three areas: cognitive (change in the area of knowledge and intellectual abilities); psychomotor (change in the motor and manipulative preparation); and affective (changes in the area of beliefs and value systems).

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Active learning should prepare future pharmacists to combine knowledge from different subjects in order to solve specific problems in practice (Blouin *et al*. 2009). The methods that are being used in teaching and the set aims also have a different degree of influence. Teaching certain content has the least influence on students, which further increases as the degree of inclusion in activity rises. The complex aims, such as those directed towards the spread of the learned material into the area of everyday work, represent a combination of active methods in which the participants observe, discuss, and practically "taste" so as to receive feedback.

Efficient interactive teaching includes the use of efficient activation techniques, such as: observation of practical activities; support in one's work; discussions in small groups; material that is created for the students themselves; and demonstrations for providing ample opportunities for acquiring practical and real-life experiences (Aburahma *et al*. 2015).

Research has shown that "*the participants in the teaching process prefer a colleague-to-colleague relationship rather than an authoritarian relationship when giving instructions. Therefore, when developing efficient leadership, teachers should adapt to their experiential and professional level"* (Kreidler 1984). Teachers have to shift from experts who lecture to coaches who facilitate (Gleason *et al*. 2011).

Providing appropriate support and rewards, both internal as well as external, can improve the results of the teaching. However, it is necessary for the teacher who is planning the process of teaching to also plan specific rewards, regarding the nature of the student (Browne *et al*. 1987). They can be diplomas, additional time for applying the learned material, public announcements, or support of any other kind.

Evaluation is indeed an essential part of every efficient interactive classroom, and it should refer to the reaction of the students, learning, behavior, and results. Measuring the degree of satisfaction with the students, the evaluation of their knowledge, the self-evaluation and observations during the teaching and practice, can all serve as elements for evaluation. The results of the evaluation should be used in the direction of improving the teaching, coming to solutions much easier, conveying responsibility, and giving feedback to the students.

5. Conclusions and recommendations

Using contemporary ways of realization of the university education, in which the students are fully involved as equal partners, demonstrates a high level of their activity, which at the same time is positively reflected on the quality of the knowledge and their attendance in the teaching process, yet can provide a possible way for overcoming part of the issues that appear when studying according to the European credit transfer system – visualized as quite an efficient way of studying. The proactive way of work, through use of appropriate interactive models, has a positive influence on the lengthiness of the knowledge, the opportunity for their application and development of strong didactic competences. Pharmaceutical education is ideal for implementation of active learning approach, as pharmacy in whole is a discipline which requires high level of combined knowledge applied in solving real and complex problems.

If one uses these ideas as starting points, then it is inevitable to come to the conclusion that the proactive nature of teaching appears to be a significant factor for the improvement of the quality of knowledge and development of skills. Furthermore, this "educational scenario" largely takes place in the field of real-life practical work. So, the contemporary academic teaching should develop more and more in the direction of employing the proactive side in conditions of real-life practice.

The issue is then left open to how much and what kind of knowledge is needed for the future pharmacists, as well as where is the line between what is thought to be a productive need and what is really needed for those who will compete on the labor market in the future.

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The authors of this article strongly believe in steps taken forward to advance the interactive models to be able to define first and foremost the steps taken towards interactive learning with equal stakeholders, and then assess the success rate of the actions taken. In the future, the practical application of the research is the idea of incorporating a more active and proactive teaching approach as a starting point (such as: working in small groups, panel discussions on given topics, constant quizzes or pharmaceutical case studies) with one student group and maintain an approach of frontal (classical) teaching in two or more subjects in pharmaceutical education. Knowledge intake would be tested quarterly or at the end of the semester and the results would be compared between the two groups. To add yet another dimension to the success rate tested, we would conduct student evaluations in order to understand their perception of the active manner of teaching and learning.

References

Aburahma,MH., Mohamed HM.(2015). *Educational games as a teaching tool in pharmacy curriculum*. Am J Pharm Educ. 79(4), Article 59, 1-9

Anderson, D. (2008). *Productivism, Vocational and Professional Education, and the Ecological Question*, *Vocations and Learning*, 1(2), 105-129

Anderson, L. W. (2000), *Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives,* Complete edition. New York, Longman

Armstrong, M. (1999), *Models for Facility-Student Interaction Outside of the Classroom.* College Student Affairs Journal, 19(1)

Baloche, L. (1998). *The Cooperative Classroom.* Upper Saddle River, NJ: Prentice Hall

Bennett, B., Rolheiser-Bennett, C. Stevahn, L. (1991). *Cooperative Learning*. Washington, Professional Development Association

Blouin,R., et al. (2009). *Roles of innovation in education delivery*. Am J Pharm Educ. 73(8). Article 154, 1-12

Browne, A., Reeve, R. (1987). *Bandwidths of Competence: The Role of Supportive Contexts in Learning and Development,* NJ: Lawrence Erlbaum

Careter, M., Curtis, D. (1994). *Training Teachers: A Harvest of Theory and Practice*. Readlif Press

Diamondstone, J. M. (1980). *Designing, Leading and Evaluating Workshops for Teachers and Parents.* Ypsilanti: High- Scope Educational Research Foundation

Gleson,B.L. et al. (2011). *An-active learning strategies primer for achieving ability-based educational outcome.* Am J Pharm Educ. 75(9): Article 186, 1-12

Kreidler, W. (1984). *Learning Style Inventory*. McBer&Company, Boston

Muijs, D., Reynolds, D. (2017). *Effective teaching. Evidence and practice* (4th ed.) SAGE Publications Ltd London, UK

Oblinger, D. G. Oblinger, J. L. (2005). *Educating the Net Generation*. EDUCASE

Oyler, D. R. et al (2016). *Practical Insights for the Pharmacist Educator on Student Engagement.* Am J Pharm Educ. 80(8). Article 143, 1-8

Prensky, M. (2001). *Digital Natives, Digital Immigrants Part 1, On the Horizon*, 9(5), 1-6

Pavlović-Breneselović, D., Pavlovski, T. (2000). *Interactive Training: A Handbook for Interactive Pedagogical Leaders Training Belgrade: Institute for Pedagogy and Andragogy, Faculty of Philosophy: Center for Interactive Pedagogy* - CIP

Petit.P., Foriers. A., Rombaut,B. (2008). *The introduction of new teaching methods in pharmacy education-II. The starting point.* Pharmacy education, 8(1), 19-28

Tomevska-Ilievska, E. (2017). *Interactive approaches to teaching*. Skopje, Faculty of Philosophy

Vail, P. L. (2002). *Learning Styles*. New Jersey: Modern Learning Press

Walsh, K. B. (1997). *Workshop for Development Skills of Primary Program Trainers*. Washington: CRI

Weimer, M. (2003). *Focus on learning, transform teaching, Change* 35(5), 49-54

Wolfe, B. (1993). *In-service best practice: Research on What Works and What Does Not*, Wisconsy: Eau Claire

Wolfe, B. (1996). *Workshop for interactive learning strategy*, Washington: CRI

Zorek, J. A., Sprague, J. E., Popovich, N. G. (2010). *Bulimic learning*. Am J Pharm Educ., 74(8), Article 59, 1-9