

Implementation of New Educational Methods: How to Overcome Obstacles?

Mladen Mimica

Clinic for Internal Medicine, University Hospital Mostar, Mostar, Bosnia and Herzegovina

ABSTRACT

A presentation of new educational methods was organized for students and teachers of the Faculty of Medicine in Mostar in 2006. Afterwards, the teachers and the students were given a questionnaire to fill on their attitude towards actual, traditional versus new educational methods. According to the results of the questionnaire, a lot of students and the majority of teachers prefer status quo, and, moreover, only 1/3 of teachers support implementation of the new educational methods. Due to the results of this survey, implementation of new educational methods was postponed for the following two years. Since the management of the Faculty of Medicine in Mostar was well aware of the fact that new educational methods help in teaching students about fundamental principles of critical thinking, life-long learning and constructive intellectual conflicts, it was concluded that implementation of new methods should be a necessity. In this academic year (2008/2009), after discussion at the Faculty Council, a new course »Modern educational methods« has been introduced into the curriculum. As the first phase, a new transitional method named »Contradiction with Evidence Based Solution« has been introduced in the workshop session. The proposed new method is a combination of the old, traditional presentation done by a teacher, and new methods which are student-centred. Realistic expectation is that implementation of other new educational methods would be easier after introduction of this transitional method. This implementation trial should be seen as a pilot project that could be introduced to other faculties, at first to those of the University of Mostar, and afterwards to other universities in the region.

Key words: education, questionnaire

Introduction

Dominant teaching style in educational institutions is still ex-cathedra lectures. It is reported that education based on lectures is not efficient. Namely, seven days after the lecture students could remember only 17% of the lecture contents¹. Besides that, this kind of education encourages students to recall only knowledge prepared by the teacher and remember only one solution of problem² without finding other sources.

In order to change this status of educational system, new educational methods started to be implemented worldwide. With these new methods students try to understand and solve problem with the help of information they find out on their own³. New educational methods train students to improve their problem solving competencies in practice⁴ and to recall information much longer than they do in the conventional learning⁵.

Nowadays, general opinion is that students do not need to know just how to do the task, but also to under-

stand why the problem emerged, and which basic physiological mechanisms produced the problem. Causal understanding of the problem through detecting of basic mechanism, process, or principle, leads to long-term remembering with possibility of fast use in situations with similar problem in the future. Traditional learning allows solving problems too, but as it is used in algorithmic way, knowledge acquired is superficial and is forgotten quickly. Learning causal explanation of problem, and answering the questions »why« and »how«, medical students connect basic knowledge (anatomy, histology, physiology and pharmacology) and clinical knowledge using critical argumentation and ranging of proofs⁶.

According to mentioned facts, producing fully trained experts in new learning methods is the key for every educational reform. Taking into consideration what was said above, a presentation of new educational methods (communicative skills based method, Payton method, PBL,

Academic Controversy, jigsaw and sandwich method) was organized for students and teachers of the Faculty of Medicine in Mostar in 2006. After the presentation, a workshop followed up and both students and teachers were involved in practicing new educational methods. Afterwards, the students and the teachers were given a questionnaire to fill in, through which they would express their opinion on the traditional and new educational methods.

The objective of the study was identification of students' and teachers' attitude towards actual traditional versus new educational methods.

Materials and Methods

Targeted population were students attending Faculty of Medicine in Mostar and teachers working at the Faculty of Medicine in Mostar. A hundred and eighty-five students and 46 teachers were included in the study. A questionnaire created to serve the purposes of this survey was anonymous and consisted of 2 questions. First question was about the present, traditional way of education, and the second one was about supporting the implementation of the new educational method. Three possible answers to both questions were positive, indecisive and negative. Completing of the questionnaire took about 15 minutes.

Results

From 185 students 99 (53%) were satisfied with the present way of education, 29 (16%) were indecisive, and 57 (31%) were unsatisfied. Ninety-nine students (53%) supported implementation of the new educational methods, 47 (25%) were indecisive and 39 (21%) did not agree.

From 46 teachers included in the study, 29 (63%) were satisfied with the present way of education, 5 (11%) were indecisive, and 12 (26%) were unsatisfied. Fifteen (33%) teachers supported the implementation of the new methods, 21 (45%) were indecisive, and 10 (22%) did not agree.

Discussion

According to the results of the survey, a lot of students and the majority of teachers prefer *status quo*, and, moreover, only 1/3 of teachers support implementation of new educational methods. The main reason for this negative attitude could be fear of unknown and realistic expectations that the new form of education would be an additional work load.

All students' and teachers' educational experience was a unidirectional way of education, and now they were faced with completely new approach. »We do not need discussion, we need answers« said one student.

Based on the results of this survey, implementation of the new educational methods was postponed for the following two years. Since the managements of the Faculty

of Medicine and Faculty of Health Studies in Mostar were well aware of the fact that new educational methods help in teaching students about fundamental principles of critical thinking, life-long learning, constructive intellectual conflicts as well as maximization of students' learning and motivation, a conclusion was made that implementation of new educational methods should be done by any available means.

In this academic year (2008/2009), after a discussion held by the Faculty Council, a new course »Modern educational methods« has been introduced to the curriculum. As it is not easy to switch suddenly to something completely new, the first step – a new transitional method named »Contradiction with Evidence Based Solution«, which is not as radical as other new educational methods, will be practiced in a workshop session. The new method differs from the old fashioned lectures in which students were completely passive, as well as from new student-centred methods. This transitional method has 7 steps. In the first step, the teacher presents the first topic. After that, in the second step, the teacher presents the second topic which is completely contradictory to the first topic. In the third step, the teacher unexpectedly connects incongruous topics (first with second topic) with a surprising effect. The fourth step is a three-day break. After the break, the students collect (fifth step), and analyze the evidence (sixth step). In the final seventh step, students make conclusions based on the evidence (synthesis).

General idea is that implementation of this transitional method, which is not as radical as other previously mentioned new educational methods, could change students' and teachers' attitude towards the new way of education. Other new educational methods would be implemented after the transitional one. Then a new survey would be conducted, to compare implementation results with the results of the first, previously mentioned questionnaire. Improvements and obstacles would be noted and published in regional journals. This implementation trial should be seen as a pilot project that could be introduced to all faculties of the University of Mostar, and afterwards to other universities in the region.

Possible limitation of proposed model could be related to the possibility that students might not react well to over-extensive changes, and that these changes could shake up students' general belief in medicine. So, the method may be used only for very important topics in long intervals.

Appendix

Case example of new hybrid educational method: Contradiction with Evidence Based Solution (CEBS)

In this case example learning objectives are: Information sources, alternative medicine, necessity of causal physiological explanation of processes and criteria necessary for credibility of scientific study.

In the first step the teacher lists various sources of information: Internet, textbooks and medical journals. Firstly, the teacher explains unreliability of the Internet. A lot of data on the Internet is given without notification of source, time, place and author of the study. Students learn about importance of asking so-called »simple (or stupid)« questions: Who, when, where, why (»Who wrote that?«, »Where was the study published?« etc).

Secondly, the students are instructed about the quality of information in medical books and unproved claims in almost every page (teacher has to give few examples).

Finally, the teacher explains why peer reviewed Medical Journals with high impact factor are the most reliable source of information, and he gives list of clinical medical journals with highest impact factor: Lancet, BMJ, JAMA, NEJM.

In the second step the students are informed about something completely different: Various kinds of alternative medicine and important position of this kind of activity in the modern world (in the USA and Australia 20% of the population visits alternative practitioner). In the introduction the teacher speaks about iridology. According to iridology every organ has a corresponding location in the iris, and iridologist can determine the disease by examining the iris rather than the organ itself.

The teacher gives students evidence about subject: Five Dutch iridologists read the irises of the sickest people as being healthy and vice versa. Later on, the students learn about the strange Chinese alternative treatment named moxibustion, and its role in even stranger indication – breech position fetuses. Moxibustion represents burning dried herb *moxa*. In breech position moxibustion stimulates acupuncture point BL 67 (Zhiyin, located beside the outer corner of the fifth toenail) to rotate fetuses in normal position. These two examples showed that alternative medicine could not be explained by physiological knowledge of the human body.

In the third step the teacher connects the first and the second contradictory topic by giving well known informa-

tion issued in the Journal of the American Medical Association (JAMA) on 11 Oct 1998, where Cardini and Weixin reported that a Chinese method (moxibustion) used on pregnant women improved the position of foetus for easier birth⁷. After these three steps, the teacher gives his students a three-day break as a fourth step.

In the fifth step, the students collect published evidence about alternative medicine in various medical journals. They are informed about homeopathic treatment of hay fever, biological effects of diluted homeopathic serum, favourable effects of prayer on coronary care patients, positive effect of prayer on the fertilization-embryo transfer, hydrotherapy and herbs for acute otitis media and streptococcal pharyngitis and other childhood infectious diseases, hydrogen peroxide baths for asthma, colloidal silver, garlic and whole-body hypothermia for HIV-positive patients, subtle energy medicine for acute stroke and electrical current in the form of positive galvanism applied transrectally for prostate cancer.

In the sixth step, the students analyse the evidence. They learn how to evaluate study on the basis of five fundamental criteria of evidence necessary for minimal credibility of scientific study (outcome measure, control, replication, randomization, reproducibility) and conclude about reliability of the study.

In the seventh step, the students make a conclusion based on evidence and critical thinking. The possible conclusion of this example could be that a) the claim that moxibustion helps in positioning of the foetus is not justified, b) despite being published in a prestigious peer-reviewed journal, the major characteristic in the evidence is the lack of proper control, c) a better investigative design would be blinding women for their therapy, and forming control group that receive a simulate treatment as heating a non-acupuncture point, thus isolating the independent variable. And finally, if result from a study cannot be reproduced by a number of high quality trials conducted by independent investigators, it has no credibility.

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M. Mimica

Clinic for Internal Medicine, University Hospital Mostar, Bijeli brijeg bb, 88000 Mostar, Bosnia and Herzegovina
e-mail: mladen.mimica@tel.net.ba

UVOĐENJE NOVIH EDUKACIJSKIH METODA: KAKO ZAobići PREPREKE?

SAŽETAK

Studenti i nastavnici Medicinskog fakulteta u Mostaru su bili upoznati s novim nastavnim metodama 2006 godine. Nakon toga su i studenti i nastavnici popunili anketni listić o svom stavu prema tradicionalnim i novim nastavnim metodama. Rezultati su pokazali da veliki broj studenata i većina nastavnika podržavaju tradicionalne nastavne metode, kao i da samo trećina nastavnika podržava uvođenje novih nastavnih metoda. Na temelju rezultata istraživanja uvođenje novih nastavnih metoda bilo je odloženo u naredne dvije godine. Kako je rukovodstvo Medicinskog fakulteta u Mostaru bilo uvjerenjeno da nove nastavne metode pomažu učenju studenata temeljnim načelima kritičkog mišljenja, doživotnog učenja i konstruktivnim intelektualnim konfliktima, dogovoreno je da nove nastavne metode moraju biti uvedene. Ove akademske godine (2008/2009), nakon diskusije na sjednici Fakultetskog vijeća, uveden je novi predmet »Suvremene nastavne metode« u nastavni program. Zamisljeno je da prvi korak bude prakticiranje potpuno nove nastavne metode »Rješenje kontradikcije temeljem dokaza«. Predložena nova metoda je kombinacija stare, tradicionalne metode i nove nastavne metode. Nakon uvođenja ove prijelazne metode bit će uvedene ostale nove nastavne metode. Ovo uvođenje novih nastavnih metoda je pilot projekt, koji bi se u početku trebao proširiti u druge fakultete mostarskog Sveučilišta, a nakon toga u ostala Sveučilišta u regiji.