

# MEDICAL SCIENCES

## INTERACTIVE TECHNIQUES AND E-LEARNING FOR MEDICAL STUDENTS

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### Abstract

This article describes the various modern techniques of higher medical education and their importance to promote interactivity during medical teaching. In medical schools, however, the time devoted to teaching dermatology is usually very limited that is why modern teachers have to use variety of up-to-date approaches. In medical practice there are lots of common dermatological disorders. Therefore, interactive methods and online educational systems have increasingly been used in medical education settings to enhance exposure to dermatology. Interactive teaching involves interchange of ideas between teachers, students and the lecture content. It refers to increased discussion among the participants and their active involvement.

**Keywords:** interactive methods of education, interactive lecture, medical education, distance education, e-learning, dermatology, medical student.

**INTRODUCTION.** In recent years, medical education has undergone several modifications related to pedagogic principles and methods. A problem-based, self-directed learning process has replaced traditional teaching in some universities, and students participate in tutorial groups. In medical education, however, the ability to teach visual specialties, such as dermatology, within a restricted time schedule remains challenging.

Interactive learning and E-learning and online medical educational systems have shown interesting benefits for learning processes. These new formats, however, have been poorly investigated, and there are some teaching methods. Interactive learning and e-learning has several advantages, including the ability to access materials at any time in almost any place, which also permits interactive web seminars and conferences with participants who may be located far away from one another. The objective of the present study was to develop a e-learning program in dermatology, which could be used as an adjunct tool for traditional teaching. In addition, we evaluated the impact of this program on student learning.

There is an increasing move within higher education to transcend from traditional teacher-focused, didactic teaching to more student-focused methods that actively engage students in the learning process, such as enquiry-based learning [6]. The reason for this move is in order to better promote student success and produce graduates with transferable skills [2].

**The aims of the article** to ascertain methods of making medical lectures more interactive, and so more student-focused, based on pedagogical literature and students views and experience of teaching in lectures. To implement activities in lectures and evaluate their impact on learning and show the advantages of interactive learning.

**Main Material.** Modern forms and methods of

teaching allow medical students to effectively and efficiently think and timely accept the right decisions.

The necessity of applying modern methods is highlighted in the works of Kennewell S, Tanner H, Jones S, Beauchamp [10] and others. Methods of attracting modern interactive technologies in pedagogy are given by Saroyon A. and Snell L [16].

According to K. O. Bakhanov, interactive learning is aimed at activating students' cognitive activity by organizing communication between themselves, students with a teacher, and between groups aimed at solving common educational problems [3]. M. V. Clarin defines interactive learning as the translation of the English term "interactive learning", which means learning (spontaneous or specially organized), based on interaction, and learning built on interaction [4].

Butler J.A. gives a very successful emphasizing that the essence of interactive learning is that the learning process takes place only through the continuous active interaction of those who study [2]. However, the issue of practical use of modern interactive methods in the teaching of medical disciplines is not given enough attention.

What is interactive lecturing? Active involvement and participation by the audience—therefore, students are no longer passive in the learning process. Also, in this approach, the role of the instructor is more like that of a facilitator. Why give an interactive lecture? Promotes:

1. Active involvement.
2. Increased attention and motivation.
3. A 'different' kind of learning that promotes higher order thinking. Students would immediately analyze and synthesize material, apply it to other situations and evaluate the material presented.
4. Feedback—to the teacher and the student.
5. Increased student—and teacher—satisfaction.

What prevents us from giving interactive lectures?

1. Fear
2. The 'context' of learning [6].

To have a very good and planned lesson means before the lesson ask several questions:

1. Which Interactive technique is reliable type?
2. Which technique develops the ability to understand the topic better?
3. I prefer... ..
4. Which technique provides good learning experience?
5. Which is more interesting and interactive technique?
6. Should seminars be conducted along with other mode of teaching?
7. Should BB teaching be integrated with OHP teaching?
8. Should computer assisted LCD projector teaching in future be included along with other mode of teaching?
9. Do you feel Brainstorming necessary in medical education
10. Should the handouts or photo state material of topic be provided

If the teacher asks such kind of questions, he will analyze and choose a really good way of teaching with the following interactive techniques and as an additional material with the usage of e-learning. To achieve the goal of increasing student participation ,attention and motivation in the lecture process various techniques are used.

What are the commonly used interactive strategies?

1. Breaking the class into small groups.
2. Questioning the audience:  
*Straightforward questions*  
*Brainstorming*  
*Rhetorical questions*  
*Surveying the class*  
*Quizzes and short answers*
3. Using audience responses.
4. Use of clinical cases:

*Cliffhanger cases.* These are cases that outline a complex situation and that include a problem calling for decision. The case narrative stops at the description point but students are asked what they would do and why. In class, students have to defend the factual basis and reasoning that led to their decision.

*Incident type cases.* Here students are presented with a short description of a problem situation. If they ask the right questions, they are supplied with more information. As a group, the students take the role of the decision maker trying to sort out the problem.

*Inviting patients.*

5. Use of written materials – e.g. handouts of slides.
6. Organizing debates, reaction panels and guests.
7. Using simulations and role plays.
8. Using films and videotapes.
9. Audiovisual aids – e.g., overhead projectors, flipcharts, whiteboards, slides and computer- assisted learning.

10. Using effective presentation skills [10].

Here some explanation of the most important and commonly used interactive strategies.

**Brain Storming:** More the questioning by the teacher more the stimulation of student's brain. This will cause arousal of attention in the student.

**Interactive Lectures:** Many teachers report a fear of losing control over students. Fear of not covering whole of the lecture. Many believe that the basic medical sciences cannot be taught interactively and that it is easier to teach clinical sciences.

**Putting questions to the audience:** Questions can stimulate interest, arouse attention in students Questions asked should be simple and to the point. The teacher's way should be non-threatening,. He or she should wait for a response of the student .

**Small Group Teaching:** Class can be divided into small groups of two and four students sitting in the neighbourhood and then asked to discuss one topic in a few minutes. This technique gives teacher an additional way of assessing student. This is powerful and affective method but noise produced during discussion is its drawback.

**Quizzes and Short Answers:** Quizzes or short answers can be used at the beginning or end of a class to provide a "check-up" on learning to summarize the information.

**Computer Aided Teaching:** Inter active teaching in a large group can be done with the help of computers. An alternative approach is the use of flash cards [11].

**Clinical Case Discussion:** This is the second most common method (after questioning) used by medical teachers. This increases interest and promotes problem solving. This makes the learning of medicine "real".

**Handouts:** Handouts are written material helpful to the teacher as well as students. Handouts of slides [1], allow students to participate more in thinking about the concepts rather than writing down every word of the lecture. The literature on handouts give higher scores in test [12].

**Audio Visual Aids:** Overhead projectors allow the presenter to maintain eye contact with the students. Flip charts and white boards allow for the creation of diagram which is very helpful in medical science. Multimedia and computer assisted learning also promotes interaction.

**Using Simulations and Role Plays:** Simulations and role plays allows students to try out a real life situation in a "safe setting" and to receive feedback. [12], imulation can be helpful in involving students at a number of levels in the lecture format.[14]. Medical simulators are increasingly being developed and deployed to teach therapeutic and diagnostic procedures as well as medical concepts and decision making to personnel in the health professions.

**Interactive models:** More recently, interactive models have been developed that respond to actions taken by a student or physician. Until recently, these simulations were two dimensional computer programs that acted more like a textbook than a patient. Computer simulations have the advantage of allowing a student to make judgements, and also to make errors. The process of interactive learning through assessment, evaluation,

decision making, and error correction creates a much stronger learning environment than passive instruction [15], [2].

Virtual patients: Virtual Patient definitions include a broader range of techniques for medical educational purposes:

- Artificial Patients or animal models (computer simulations designed to teach biochemical or physiological principles without conducting experiments on humans or animals)
- Human Patient Simulators (mannequins or life-like models reflecting human appearance, pathology and physiology)
- Simulated Patient (patient information recreated by humans using fictional data and stored in a database for student use)
- e-Patients (use of real patient data with different name to maintain anonymity, e.g. electronic health record information)
- Virtual World Patient (patient is a computer generated character - an avatar - living in a virtual world environment).

Teleconferencing: Teleconferencing makes it possible to connect the resource persons at one end and the learners/participants gathered at dispersed centers, and to engage them in dialogue, discussions and doing activities with effective learning outcomes. The medium brings in interactivity as is possible in a face-to-face group situation.

Debates, Seminars and Guest Lectures: Debates can be conducted and the student on either side can be asked to support two different sides of the issue. [4] similarly, seminars and guest lectures should be conducted after completion of one topic. All these will help in arousing attention in students and thus increasing interactivity.

**Conclusions.** Interactive lecturing involves an increased interchange between teachers, students and the lecture content. The use of interactive lectures can promote active learning, heighten attention and motivation, give feedback to the teacher and the student and increase satisfaction for both. This article describes a number of interactive techniques that can be used in large group presentations as well as general strategies that can promote interactivity during lectures.

Interactive lectures are a superior way to teach and encourage learning because different activities can help the student focus and refocus their attention to the topic. They can encourage active learning, group learning and deeper processing of material instead of rote learning.

They can provide immediate feedback to the lecturer on students' comprehension of material. Through interactive lectures, students will become more engaged in the learning process, and retain more information. Furthermore, both student and teacher will be more satisfied.

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