

The art of lecturing must be learned

It is a common preconception that if you are knowledgeable in a particular discipline, then you are also qualified to give lectures in it. However, new research indicates that the traditional monologue lecture often produces little in terms of learning outcome.

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The traditional lecture, in the form of presenting material as a monologue to students (monologue lectures), has through generations been the primary form of teaching in higher education. The idea has been that if you have the appropriate background in the discipline at hand, you are also qualified to teach it. Having studied the research literature, I am starting to have doubts about this.

I have come to the conclusion that the lecture is a form of theatre, that many lecturers fail to master the techniques required to perform appropriately in this theatre, and that traditional monologue lectures therefore tend to provide little in terms of learning outcome. A lecture embodies all the ingredients of a theatrical performance: an actor – the lecturer, a theatre – the auditorium, an audience – the students, and a manuscript – the material to be presented.

The presentation

Why do so many lectures provide so little in terms of learning outcome? One main reason is that the ability to lecture is not an automatic effect of knowledge of the discipline, and few lecturers appear to have the relevant background for presenting the text appropriately.

Too many lecturers lecture in the same way as they have been lectured to, i.e. in the form of a monotonous monologue without any effective presentation techniques. They have not learned to perform in front of an audience. Richard M. Felder, Professor Emeritus at North Carolina State University states it bluntly: «College teaching may be the only skilled profession for which no preparation or training is provided» (1).

It can be compared to acting. The mere fact that the actor is skilled in recalling the script is insufficient. Knowing the script of «Peer Gynt» is of little help if it cannot be presented convincingly. The entire play depends on the performance. If it is poor, the lecturer will fail to put his message

across – the presentation will be monotonous, boring and uninspiring. The students lose their motivation, and no learning takes place. World-class universities, such as Harvard University, provide training in such skills. The actress Nancy Houfek teaches theatrical performance to students, referring to it as «The act of teaching» (2). Could this be something for Norwegian universities and colleges to consider?

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Three main elements

In my opinion, three elements must be present to make a good lecture.

The lecturer must have a thorough grounding in the material. This basis is required for him/her to be able to handle the material freely and playfully, lecture without a script, remain open to questions and improvise, and create an unrestrained, natural learning platform with a high degree of dialogue and interactivity – and a large learning outcome.

Furthermore, the lecturer must have passion – he/she needs to be passionately involved in the discipline and radiate a genuine interest. This gives rise to motivation (3).

And last, but not least, the lecturer must be able to present the message. So what is required from a good presentation? A good lecturer needs to master three theatrical disciplines. He/she must be a good author – the script must be of good quality. He/she must also be a good director – the dramaturgy of a lecture is completely essential. Finally, he/she must also master acting. Such things can be learned, but during my six years of medical studies we never even touched upon such skills. One should, though, because in the course of their careers,

nearly all medical practitioners will be given teaching assignments for small or large groups, or both.

Little learning outcome

Recent research shows that the monologue lecture provides little in terms of learning outcome, but that there are ways to lecture which can increase it considerably. Some studies indicate that less than ten per cent of the material presented in a traditional monologue lecture is retained by the listeners, even when they are questioned less than one hour after the lecture has been held (4, 5).

Fifteen minutes after a lecture, Joe Redish, a respected professor of physics at the University of Maryland asked his students what the lecture had contained, and received only vague generalities in return (4). The students had absorbed very little in terms of real knowledge. One may ask what they could recall a couple of days or weeks later.

A more structured study investigated what 18 students of physics had learned from a 14 minute-long video on audiophysics, presented by a respected lecturer. The results were equally dismal. Only one of the 18 students was able to provide correct answers to most of the six questions given to the group (5).

Carl Wieman

Learning outcomes can be increased considerably if the lecturer receives training in the art of lecturing and makes use of techniques that activate the students, such as study guides, pre-lecture assignments and dialogue lecturing.

Such things have been studied in more detail by the Nobel Prize laureate Carl Wieman, who heads a project at the University of British Columbia (6).

Wieman claims that the learning outcome can be increased considerably by using other techniques than the monologue, especially techniques that give rise to active learning, such as dialogue lectures, preferably in combination with the use of written sources, such as a study guide that makes the students more active, or a requirement that the students must have completed an



Illustration: Stein Løken

assignment before the lecture – what I refer to as pre-lecture assignments (4).

One of the main reasons for the poor learning outcome is that monologue lectures assign the students to a passive role. They provide the students with little opportunity for feedback, and do not stimulate a mindson approach. In addition, their information density tends to be high, and produces a cognitive overload in the listeners. Such lectures overload the short-term memory, the students lose their motivation, and the activation of the brain that could ensure that the material is absorbed fails to occur.

Most lecturers have not been trained in the art of lecturing, and this serves to exacerbate the passivity. However, this does not imply that the lecture as such is a poor learning tool; on the contrary (7–9), it is just rendered ineffective by the monotonous monologue. Lectures are probably effective when used in a proper way (interactively). One should indeed devote more effort to providing good-quality lectures, because an expert who guides his/her students in an appropriate manner is an effective learning tool (10).

Study guides

A number of studies show that active learning produces a better learning outcome (11, 12). My personal experience is that the

combination of study guides and dialogue lectures can produce better learning outcomes. An R&D project involving nursing students at Stord/Haugesund University College resulted in major academic progress and was very well received by the students. At the same time, the rate of examination failures declined.

A study guide is first and foremost a learning tool that serves to render the students more active and includes supplementary learning material, most often written by the lecturer. The guide tends to include a summary of the main points in the material and the basic principles of the discipline, written in an easily accessible style to promote in-depth understanding. The guide may also contain supplementary illustrations, various exercises, with or without a key, as well as other input that can provide an alternative approach to the learning material and stimulate active learning. The main purpose is to ensure that the lecturer and the students have a shared cognitive platform.

The most important thing we as lecturers can do is to motivate and stimulate the students to independent activity. I believe that the best way to do this is to engage in close dialogue with the students, by way of dynamic dialogue lectures. A study guide is a good tool to engender dialogue, and there-

by also motivation and individual activity. Reading fifty pages of dense scientific prose on a subject before a lecture is not purposeful. This produces a cognitive overload in the students, and they are unable to distinguish between the essential and the non-essential elements in the material. However, the students will want to read six to eight pages outlining the essentials, where focus is placed on the basics with an emphasis on in-depth understanding, explained in simple terms in a study guide. They will also solve the pre-lecture assignments, and this will serve as a good basis for a dialogue.

As a result, we will have established an academic community which inspires confidence and acts as an inclusive learning environment that promotes dialogue. By having read the same material and addressed key exercises related to the core material before the lecture, everybody shares the same cognitive platform, and the students have been provided with some pegs on which they can hang the supplementary information.

Study guides are being used in a number of prestigious universities and colleges in the US and Australia, such as Harvard University and Stanford University.

Another reason for supplementing the

material with a study guide is that the students often find the scientific content of the textbooks too complicated, and that the books are written in an inaccessible language. Many of the traditional textbooks in natural science disciplines appear to have an excessive information density and contain too much detail in their descriptions.

The authors of textbooks place insufficient emphasis on presenting their material in an easily readable manner, and on describing the simple, basic principles that promote in-depth understanding. Some textbooks are perhaps not primarily written for students, but rather intended to impress colleagues within the discipline. Many textbook authors are fearful of oversimplification and of writing anything that can be picked upon by critically-minded colleagues. This may easily result in a dense stream of new facts, presented in the form of long-winded sentences and abstruse jargon which are hard to understand for a newcomer to the discipline.

In the words of the well-known author of physiology textbooks, Arthur C. Guyton (1919–2003): «Many textbooks of medical physiology have become discursive, written primarily by teachers of physiology for

other teachers of physiology, and written in a language understood by other teachers of physiology but not easily understood by basic students of medical physiology» (13).

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