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11-13-2007

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Mark Werner Dr.

The American University in Cairo AUC

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Recommended Citation

APA Citation

Werner, M. (2007). Getting students excited about your course: A tip from the best university teachers. *New Chalk Talk*, 7(6),

https://fount.aucegypt.edu/faculty_journal_articles/4957

MLA Citation

Werner, Mark Dr. "Getting students excited about your course: A tip from the best university teachers." *New Chalk Talk*, vol. 7, no. 6, 2007,

https://fount.aucegypt.edu/faculty_journal_articles/4957

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NEW CHALK TALK



November 13th, 2007. Vol.7, Issue 6

Getting students excited about your course: A tip from the best university teachers

Dr. Mark Werner, Assistant Professor, Department of Mathematics

What makes teachers “good”? Don’t we all dream to be the type of teacher for whom students continually pack their classes, so eager to learn from them that they can’t wait for the next class, and sometimes even bring their friends too... the type of teacher who would be considered “outstanding” by students and colleagues alike. Is this even realistic?

I recently came across a great little book describing common characteristics of exactly such a group – all of them university-level teachers at well-known research-institutions. “What the best college teachers do”, by Ken Bain (2004), presents a fascinating snapshot of professors from a variety of fields who have inspired their students to truly master their respective subjects, according to whichever criteria you wish to employ. I was personally inspired by the book, and was asked by Dr. Aziza Ellozy to provide a brief summary to the AUC teaching community.

One of the main points emphasized by Bain is that the most successful teachers don’t concentrate so much on transferring facts or “isolated information” because this often leads to “strategic learners” – students who have mastered the skills of doing well on exams and getting high grades, but who have forgotten most of the content by the next semester. Rather, the best teachers figure out ways to motivate students to study and work hard almost without their realizing it. Accordingly, they often remember the subject matter years after taking the course. Many teachers encounter this with perhaps a handful of students, but the truly great teachers are able to achieve this for just about the entire class.

This process can be started by providing a sufficiently deep challenge to students that would show that their previous knowledge is inadequate. The next step is to stimulate them to view that the problems in your course are so incredibly important, intriguing or beautiful, that they can hardly wait to solve the new problems you have presented. For instance, a group of Physics professors at Arizona State University devised an experiment for the first week of class that required students to predict the motion of an object. Nearly all of them (including the A students from previous courses) got it wrong, clearly demonstrating that their existing knowledge was totally inadequate to explain the world around them, and that there are tangible consequences to making the wrong predictions.

Many professors think that their fields have unique challenges in that they have to get through a packed syllabus. These feelings are probably more prevalent among many more disciplines than commonly thought. For instance, medical students who take the dreaded “anatomy” course don’t normally have high expectations of the course because of the perceived heavy emphasis on rote memorization. However students at Northwestern University who take the course with a particular professor always score in the top percentiles at the external medical board exams because of the way this professor tackles the material: her approach is to devote a lot of class time to case studies and actual applications such as medical (mis)diagnoses. This engages the students and indirectly motivates them to master the intricacies of the human body. Additionally, she deliberately tries to invoke in her students the same sense of awe she recalled having when, for example, she first encountered the human brain.

Great teachers know how to grab the attention of the entire class, and maintain it. As a matter of fact students frequently learn more when not in a formal “classroom mode”. Bain talks of a medical professor from Stanford who would sometimes start his class with something along the lines of, “Before we get started, I was having some trouble with my back this morning...”, and before long, the students are offering all sorts of advice, insights and hypotheses making it easy to transition into the topic of the day, which “just happens” to be the human back.

The best teachers lead their students on a journey of discovery – regardless of what the “facts” might be, there are almost always ways to get students interested and involved in how these facts came about – what factors led to their discovery, what controversies did their announcement provoke, what sort of impact did they have on the development of our understanding of this field or the world at large? One of the teachers cited by Bain is a calculus professor from Stanford who often garnered 90% of all the department's A's on the common departmental final exam. His most fundamental idea consists of getting the students to “re-invent” calculus, leading them step by step to rediscover each topic, so that they think it's only a matter of being born in the wrong century that prevented them from taking Newton's place as the originator of the important theorems of calculus.

This process of discovery is a critical one, and requires teachers to be active researchers in their field; at a minimum, this entails keeping up to date with current developments in it. Bain also states that the best teachers have an “unusually keen” knowledge of the historical development of their subject, so that they are able to convey scientific theories as controversies, refutations, vindications, etc. – a genuine struggle in search of truth.

Sometimes innovative teaching methods are criticized as relaxing the standards, and that students like them because they can get higher grades with less effort. That certainly need not be the case. Not one of the best teachers examined in this study was, in fact, known as a “lenient grader”. To the contrary, they typically had higher expectations of the students than their colleagues, but they gave plentiful help to enable the students to reach their objectives. They conveyed an implicit trust in the students' ability to do so, an aspect that was clearly noticed and acted upon by the students.

Of course, outstanding teaching is more than a collection of strategies, but rather a process and a journey, that begins with deep reflection about what is required to get students to “care deeply” about your course. Time spent getting their attention with various experiments, discussions, and multimedia shows, even if at the expense of covering “all” the material you thought you just “had” to teach usually pays for itself several times over in the form of increased student motivation to work hard outside of class. And naturally, every teacher has his/her “bad days”. The examples studied by Bain were no exception. But as we say in Statistics, a few odd data points are not what describe the situation; what counts is the trend...

References

Bain, K. (2004). What the best college teachers do, Harvard University Press.

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