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Are Your Learners Learning? A Critical Look at How and What We Teach

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"The greatest enemy to understanding is coverage."
Howard Gardner (Brandt, 1993)

After teaching at the university and college level for over twelve years, it has become painfully obvious to me that many professors have little idea of how to effectively teach a class. Sure, nearly everybody knows how to stand in front of the class and lead lectures and discussion on topics presented in the text. Exams are dutifully administered after each chapter, the questions drafted so as to ensure coverage of the ideas presumed to have been learned in the preceding weeks. Some faculty have even read a thing or two about constructivist teaching techniques, cooperative learning, and other "new ideas" that might enhance their classes. Yet time after time students come into my office and complain about different classes they are taking. From the conversation I usually learn that often the student's difficulty comes from poorly conceived and implemented instructional methods. The problem? College and university faculty are typically not certified in education; they usually have no formal exposure to learning theories and instructional methods, and the result is that they often teach like their mentors did without giving the matter much thought. Nearly all time and effort is dedicated toward content and research. After all, that's what doctoral and graduate programs are all about. Professors are certified subject matter experts in their field, but what then makes them competent to teach this material? Granted, many have served as teaching assistants in graduate school, meaning they lectured a few times and graded all the papers the real professor didn't want to waste time on. I believe, however, that institutions of higher education are doing a disservice to their students by not directing appropriate attention to ensuring that students are actually learning anything. Indeed, many schools have openly admitted their main role is *not* teaching undergraduates, but rather promoting research. Fortunately, my

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institution is a teaching college first and foremost, but that doesn't mean everybody necessarily knows how to do it well.

Lest anyone get the impression I consider myself above this lamentable state of affairs, let me clearly confess that my background was exactly what I just described, with no formal coursework in education or teaching. I jumped into this profession with gusto, eager to design my classes as I had experienced in school. I organized my lectures and class discussion around the standard topics typical to my field of recording technology and music business. Students completed recording projects in our campus studios. I wrote exams and weekly questions based on the text readings and our class sessions; I would then look at this extant data and observe that most of them seemed to perform quite well. And all was well with the world until I began going into the studios with our seniors and asking different kinds of operational questions. I would present scenarios for them to solve—things that would come up in the real world, but that would not necessarily have been presented in the books. The result? Many students could not understand the problem, nor could they adapt what we had covered in classes to new situations. I found large gaps and misunderstandings in basic theory relevant to the field.

What went wrong? Why could students not take what they had supposedly learned and adapt that learning to different situations? Why were they not getting fundamental concepts of the field that we had talked about over and over? Hadn't we covered all this in their foundational courses? To be sure, there were always a few students for whom this material came as naturally as breathing. But the majority of them were having a more difficult time, especially those who had no previous experience with recording. I needed help, and as I began experimenting with different approaches in my classes I began reading anything I could find on learning and instruction. It was not very comforting to learn that my experience is an all too common problem. For instance, studies have revealed that a majority of high school graduates do not possess accurate understandings of even the most basic principles in science and math, such as the distinction between heat and temperature. (Perkins, 1991, p. 18) These are not the low achievers, mind you, but the "bright" academically motivated students who are college-bound to major in these areas. Something seems to be awry in our overall concept of what education is about. There must be better ideas, and my mission for the past several years has been to find what they might be and figure out how to employ them in my own teaching. I even decided to

focus my doctoral studies not in music, but instead in instructional design, a field that examines human learning theory and ways to design effective instructional environments.

What I discovered has led me to a radical rethinking and reconceptualization of what learning *could* be. It does not reside predominantly in exams, lectures, and grades ad nauseam. Faculty in music business and recording programs are fortunate in that students usually come to our schools specifically for our programs. They are inherently interested, the passion is there, and all we have to do is tap that enthusiasm and ensure they learn the essence of the field. I began to realize that *context* meant everything. No amount of discussion or memorization of terms and procedures would sink in without being grounded in a realistic, applicable context to which they could relate. Breaking with tradition, I began organizing my classes around applications and issues, rather than content and topics.

This reorganization of my classes created a problem, since nearly every published text in the field is organized by topic, chapter by chapter, just like in other disciplines. For instance, it made no sense to attempt teaching decibels and waveforms when they had never seen *where* dBs come into play and *what* they are used for, even though this is nearly always the first chapter presented to the reader. I began writing my own book, organized around the major stages of music production. We take one aspect of the recording process, talk about what happens, and introduce new terms, concepts, and procedures *in the context* of what they mean for that particular stage. When we talk about potentiometers and VU signal levels, they can *relate* because they've actually touched the controls and seen the meters in class and in their lab work.

I've begun worrying less and less whether students memorize a vast lexicon of verbiage, which for them may have little or no meaning. We're so convinced that we must cover certain amounts and types of content in certain courses—if students don't "have this in class," then they'll somehow be handicapped the rest of their careers. That's why traditional school classes are structured nearly the same way, covering the same content in the same chapters. And of course, we must cover *all* the content before the semester ends, so what do we do? We cover the curriculum, testing along the way to prove that we've covered it. To do this, we must present the information to the class in as efficient, coherent, and complete manner as possible. So we organize subject matter we deem important around the *what*, rather than on the *why* and *how*.

Many education professionals insist this is not only backwards, but counterproductive. Roger Schank is one of the most vociferous of these, evangelizing for a radical shift in how we approach learning. Not without controversy, he nonetheless forces us to think about this issue in real-world, down to earth terms. Take, for example, his thoughts on how classes are arranged around teaching facts and requiring students to study this trivia for exams.

> The problem is the ubiquitous idea of "studying." Students study. We love it when students study. We give them study halls. We laud good study habits. But we need to understand that studying is a ridiculous idea. We don't study except to pass exams…you must attempt to memorize obscure facts that will never come up again in your life in order to pass these tests that our school systems and our politicians love so much.
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> Why do this? It doesn't teach you anything for very long. It certainly doesn't teach you about the fundamental ideas in a field or their application in real life. Instead of study halls there should be "practice halls." Students need to practice what they are trying to learn. This idea makes plenty of sense in music. Students who get to play the piano over and over again get better at it. Well, if we want to teach psychology, we should let students practice it. What does that mean exactly? Frankly, I am not sure. It might mean discussing ideas or looking at problems and forming conclusions. Whatever it means, it surely doesn't mean memorizing irrelevant facts. (Schank, 1999)

Schank believes all learning becomes more effective when it is grounded in real life, when students actually *do something*, rather than *know* something. After all, what good is knowing if one cannot apply this knowledge? We often delude ourselves by teaching facts, equations, and principles first, and then expect students to apply this knowledge in "real" situations, such as lab experiments and problem solving. Tom Magliozzi, a graduate of MIT and co-host of NPR's Car Talk, makes the same claim. "We teach kids techniques before they have any appreciation for what use those techniques have and before they have any personal meaning."

(Lippman, 2002) We should let students try first, and then learn as they need to. Learning becomes meaningful when students can relate and when they possess some ownership in the outcome—not because the instructor tells them the material on the board is important. David Jonassen, constructivist instructional design professor, warns us that we "cannot teach theory first and then ask them to apply it—humans simply do not reason that way." (D. Jonassen, class seminar, spring 2000)

What became apparent during my one-on-one discussions with my students is the reality that each individual will come away from a course with very different notions and conclusions from their classmates. Even though we present the same material in the same fashion to a roomful of students, there is no way to ensure that each of them gets the same concepts and mental understanding of that material. We each develop our own construct of what we experience in class, altered according to our own particular lenses, backgrounds, and frames of reference. And yet we continue to administer final exams with the misguided assumption that these will evidence which students "got it" and which did not. Worse, we then sort and categorize our students based on this fallacious data. Knowledge is a socially negotiated, individually constructed enterprise. Each of us has a different "take" on the world and things we encounter throughout life. To be sure, there are certain levels of black and white knowledge that everyone can agree on, but beyond that it gets very murky very quickly. Sometime ask your students to diagram or sketch their view on certain topics from class—or just have them sit and talk with you. This simple exercise can be very revealing, showing us that their thoughts and understandings are all over the map, sometimes not even coming close to what we were trying to convey to them. When we write exams and ask questions in class, too often we fall into the trap of leading the answers—the questions are rarely truly open-ended where we're after what the student really knows or thinks. We are usually after the "right" answer, for which students are summarily rewarded with a high grade for the course. This process, of course, reflects not at all on their personal understanding of the subject—*their* mental picture, but merely on their particular abilities to read, listen, and answer what I want them to "get."

Matthew Miltich, an English professor in Minnesota, suffered a traumatic life event that left him without the will and desire to continue reading and grading papers and exams. The words didn't mean anything to him, but the names and faces of each of his students did, and so he stopped giving

written exams and began talking with each student individually. These intimate conversations opened his eyes as to what his students were actually thinking and understanding. It made him realize that learning was individual, unique, and *personal*. (Miltich, 2001-02) This is a far cry from machine-graded, multiple choice tests—a long way from cramming lecture notes the night before that test. The reality that all our course content is based on is real, and we can all agree on this—but what it *means* to each of us is most definitely different, quite different. Jonassen flatly states, "We can teach people about stuff, but it's delusive to think we can control what they get out of it." (D. Jonassen, class seminar, spring 2000)

Conclusion

So, what can we take away from all this? Do we throw away our lecture notes, class projects, and grading rubrics? Hardly. All of these components have a legitimate place in the classroom—however, we must be diligent in reminding ourselves of these issues and carefully design our courses with the *students* in mind. I would suggest that most of us select content, coverage, and course schedules based on our own knowledge base, frame of reference, and pre-conceived ideas of what we want our students to get from the class. I would also suggest that most of our courses are based on the *what*, meaning a shopping list of content that we deem important for them to have learned. Before next semester, ask yourself what you would like your students to be able to *do* at the end of the course and work backwards from there. That is the topic for another article; for now I simply challenge you to think differently with these issues in mind. It's not easy—I face this difficulty every single semester, and I still simply give in many times, finding the old ways of doing things easier and more efficient, all in the name of covering the content. I do not consider myself to be a role model for these ideas. My intent here is merely to share my discoveries, hopefully provoking productive discussion and perhaps a re-thinking of what we do for our students. A close friend and colleague of mine impressed upon me long ago that every thing we do, every decision we make, must be based on what it would mean *for the students*. Many faculty are doing excellent work with and for their students. There are many great ideas that collectively would greatly improve the effectiveness of music business and recording curricula across all our institutions. Let's continue the dialogue and see where it can take us.

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