

Greetings to students taking mathematics classes at Valparaiso University,

There is a good chance you have taken, are taking, or will take a class in mathematics that is offered in a rather unusual format. The buzzwords for some of these different formats are “inverted (flipped)” classrooms or “inquiry based” classrooms. This note to you is to assure you that these are not just crazy schemes invented by our instructors to make your lives more difficult, but are accepted instructional practices taking hold in academia. You are in school during a pretty significant paradigm shift, and will certainly encounter a classroom setting that you are not used to, whether it’s in math or elsewhere.

When students take a class that is designed in one of these alternate formats, they often compare their experience and expectations to the more traditional lecture format. Remember, though, that the origin of the lecture was to facilitate the dissemination of information. Before printing presses, telecommunications, and ultimately computers, the best way to disseminate information (knowledge) was for one person who had the knowledge to pass it on orally, so that the people without the knowledge could write it down for themselves. A student’s first encounter with new ideas in a classroom came when the teacher spoke of them. And while many instructors find it preferable to maintain that style, we now have the technology to give broader flexibility in the choice of the instructor in how to deliver information.

In fact, our modern technology allows students to easily have their first contact with new ideas before and outside the classroom. Rather than attending class and then taking new information away to struggle with on your own afterwards, you are able to turn that around. With video and communication technology, you can be exposed to new material for the first time before class, then use class time to practice the material with your peers, and resolve your uncertainties about the topic at hand. The outcome of such a system is that you are able to control the pace at which you encounter material for the first time. In a lecture, everyone is on the same pace. Students who pick up the material more quickly can become bored, while students who struggle with the material can get lost. In an inverted classroom, where the initial contact with the material is on your terms, you can spend as much or as little time acclimating yourself to the content as you need. This has benefits, but it does indeed take quite a large commitment on your part to shift your personal time management to load up on content ahead of class, when you are used to going into a class with no preparation and then taking on the bulk of the work afterwards.

One of the common remarks I hear about these new classroom paradigms is, paraphrased, “I am not paying all this money just to teach myself.” In reality, even in a more traditional system, you indeed are doing just that. To pretend otherwise is to assert that learning is a totally passive exercise on your part: as long as you deliver your physical body to a classroom, then with no effort on your part, the information you need will be deposited in your head for you to use. But we all know that’s not true. In a standard lecture classroom, your job is not done until you have written your notes, then taken them home and practiced by doing homework. You are indeed teaching yourself in either case, but in an inverted classroom, we are changing the order in which that happens. What you are paying for is access to the expertise of your instructor,

who decides (based on personal preference, skills, and past experience) on the best means of delivering the information to you, helps prepare the material you are to encounter, answers your questions, and acts as a role model in the problem solving process.

Don't picture your classroom experience as one in which you simply purchase a season pass to a show, in which you go sit passively and observe someone else's performance a few times a week. Rather, take an active role in your own learning, no matter what the "system" is. In the newer paradigms that are taking hold in academia, we have the technology to make it easier (and yes, required) for you to do this. There is no doubt that the transition is not an easy one, either for faculty or students. But this transition is indeed taking place in math classes, in other departments on our own campus, and on campuses around the globe.

If you ask faculty members of Valparaiso University what he or she thinks his or her job is, the response would probably be, "Our job is to teach students to teach themselves." One of the University's stated missions is to create a community of "lifelong learners." We faculty are not fountains of information that you absorb passively like a sponge. Rather, in a good classroom experience, your instructor – no matter how he or she gets information to you - should eventually become dispensable, because your instructor should be helping you learn HOW to learn. And putting this learning in your own hands as soon as possible is a way to do that which simply wasn't readily available until recently.

Here are some links you can follow if you are interested in the larger conversation about these academic game-changers that are often referred to as "innovative pedagogy". In the future, though, these will not be "innovations". They will be part of the norm. And as students in the early 21st century, you are caught in the wave.

On Flipped Classrooms:

<http://net.educause.edu/ir/library/pdf/eli7081.pdf>

On Peer Instruction:

<http://mazur.harvard.edu/research/detailspage.php?rowid=8>

On Inquiry Based Learning:

<http://www.teachinquiry.com/index/Introduction.html>

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