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whitepaper
TEACHING SERIES

Fundamentals of Innovative Teaching





1. Background

A quick online search for the term *Innovative Teaching* will yield a virtual deluge of useful information, musings, and updates on the art of teaching. One can find very insightful teachers, academics, and organizations creating excellent content. This paper is a review of the latest practices in innovation teaching and my thoughts based on years of experience.

First, let's define things. By *Innovative Teaching*, I am referring to the pedagogical practices that empower instructors to be more engaging and interactive with their students. I like the definition by Walder (2017) from a recent study. She says "pedagogical innovation is understood as any new teaching practice that differs from the traditional lecture with the purpose of improving learning." While non-scientific and without being steeped in psycho-cognitive jargon, this definition captures all forms of how information can be creatively delivered beyond the lecture. I

also appreciate the fact that she emphasized the need to "improve learning." Certainly, the scholarly community of educators, psychologists, and communication specialists could add to this definition, but everything will eventually center around:

- 1) how not to simply lecture and
- 2) how to improve learning in our classrooms.

In my own experience using innovative teaching techniques within the college classroom, speaking with innovative colleagues around the country, and in my obsessive research of the topic, I find innovative teaching is practiced by teachers seeking to engage their students, improve their communication, and better the relationship between a student's interest in the material and the material itself. Closing this "interest gap" is at the heart of breaking through to a student's inner scholar and stoking the flames of a student's innately human desire to learn.¹

2. Modern Innovative Techniques

An insightful article by Sivarajah (2018) and her team focused on the techniques found within innovative classrooms. Here is a shortened and slightly modified list:

- 1) Active and Engaged Learning,
- 2) Digital Response Systems, and
- 3) The Flipped Classroom.²

All of these take different forms, functions, use of related hardware or

software, and varying degrees of skills to successfully deploy. Some require a simple online search for how to implement within the classroom, while others require hours of serious trial and error in a live setting to be certain the improvement of learning is occurring over time. Many additional white papers and research studies could be written explaining the various sub-elements of the above techniques. Here is an overview of each and some conclusions about their effectiveness in higher education.

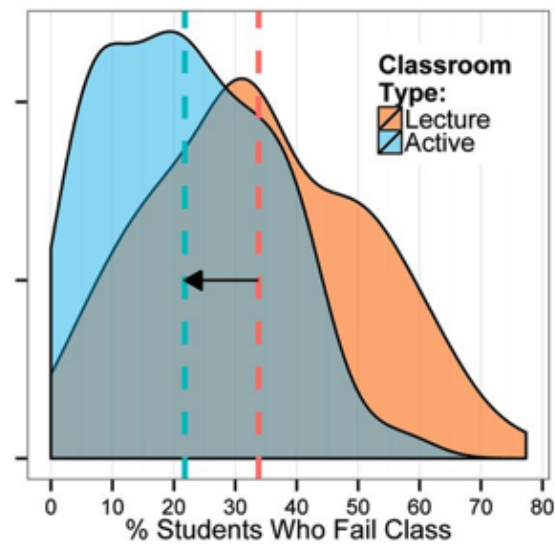
3. Active and Engaged Learning (AEL)

AEL is a general term relating to both Digital Response Systems and the Flipped Classroom which will be discussed later. AEL is “any activity other than watching, listening, or taking notes” (Felder and Brent, 2009). Transitioning away from a teacher-centered approach to a student-centered approach is at the heart of active learning. Moreover, when the student-centered approach is coupled with cognitive skills of a higher order, then AEL is improved. Much of the research on AEL shows its effectiveness is based on the fact that student’s attention is improved, intellectual stimulation is heightened, and students are increasingly motivated to complete tasks.

The actual implementation of AEL can be a simple activity such as think-pair-share or it can be complex (for example, group video productions of learned material or games that teachers create based on the material). There are

some new and interesting findings of gamification and visualization’s impact. I have implemented numerous types of games within my economics classes to create exciting and competitive learning environments. A number of AEL recommended activities can be found online, in various books written on the subject, and elsewhere within the consultation space (including my own list of services).

The following graph is from Freeman (2014) who reviewed 225 studies comparing the impact of active vs. traditional learning in STEM undergraduate classrooms. The study contained many affirming results, one of which highlighted the decrease of failure rates associated with the active learning classroom type (33.8% with lecture to 21.8% with active).



It is only the teacher’s imagination that limits the types of AEL activities available within a given classroom setting and, logically, this applies to any

event where information needs to be learned by a group of participants. There are positive spillovers resulting from AEL as well. Some of the key professional development takeaways include improved communication, teamwork skills, and information retention.

4. Digital Response Systems (DRS)

A DRS is a technology that presenters use to acquire real-time feedback from an audience of students, event participants, or even colleagues in a corporate meeting. Their popularity is based on the nearly unlimited number of environments in which DRS can be utilized. Modern DRS systems, such as Poll Everywhere and NearPod, are feature-rich, web-based, and maintain smartphone applications that add to their convenience. Apple's new Schoolwork application for the iPad and new Classroom application for the Mac are the latest entrants into this important space. Price points tend to be affordable for most teachers, school districts, and universities. Interfaces now are much more user-friendly than they were 5 - 10 years ago.

In my opinion, the most important technological improvement these systems have made in recent years is that they are web-based or cloud-based. This means, the systems can oftentimes be utilized without the installation of complex software or the need for presenters to haul expensive equipment which, back in the day, required the need for tethering.

5. The Flipped Classroom

The flipped classroom can help improve educational outcomes given its focus on active learning. The model for the flipped classroom is based on the inversion of the teacher as lecturer and student as recipient. With the flipped model, preclass learning material is provided in advance to the student via online videos or readings (for example) and classroom sessions are primarily dedicated to the active engagement of the material. Many studies that have tested the effectiveness of the flipped model and the results are positive (Mohamed and Lamia, 2018). From middle school to graduate programs, the flipped model is showing results that underscore its likely enduring place in classrooms of the future. Some schools and universities, in fact, are converting entire curricula to the model (Hamden et al., 2013; Krisberg, 2017).

Trainings and certifications on the flipped model are becoming more visible online, while books dedicated to the subject are just a few clicks away. I have personally flipped three of my college courses, with positive results that mirror the studies.³

However, I also recognize the many criticisms of the model. Some teachers argue that the effectiveness of flipping a class is contingent upon one's time to dedicate towards such a goal. This argument is understandable. In my own classroom flipping experience, I spent a substantially higher number of hours towards class preparation. I can say to those with this concern that once a class

is flipped, the time commitment decreases if you maintain some degree of organization over your flipped material for future use. Online notebooks such as Evernote or Onenote are especially ideal for this. Additionally, not every class needs to be flipped. Some classes contain subject matter that could be flipped, while some subject matter can be taught in its current form.

Other concerns are voiced by students who complain the flipped classroom actually shifts the pedagogical workload unfairly from the teacher to the student. This is a valid concern in environments where teachers do not effectively scaffold or organize the flipped activities. When students do not understand the preclass learning content, frustration is inevitable. However, when preclass content is thoughtfully deployed, well-organized, and accessible, students tend to appreciate how their preparation is rewarded by a highly active learning environment that reinforces their preparation.

6. Conclusion

This is a very exciting time to be a teacher. Never before has such convenient and affordable technology converged with the plethora of proven research-based teaching methods. However, the idea of *Innovative Teaching* should not be thought of as simply “newness” or “tech-based,” nor should it be associated with the latest fad in education. It should be considered the tool belt that well-intentioned, modern educators wear, from which we extract

various pedagogical tools that are appropriate for our students and our learning objectives.

¹Sivarajh (2018) and her team also included Long Distance Teaching as a technique.

²For a very detailed exposition on pedagogical innovation, see Hannan and Silver, 2000.

³See my earlier blog post Reflections from the Magna Teaching with Teaching Conference 2017 to learn more about classroom flipping resources, such as those developed by Barbi Honeycutt.

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