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William Deisler

A New Beginning:  
Why the Education System should Incorporate Active Learning  
Methods in the Classroom

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English 1221  
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It has become common today to remain content with the way things have always been done, especially in the education system. People have been going to schools for millennia and the process has not changed much, so why should it change now? According to some experts, alternative teaching styles could improve current test scores and overall classroom performance. In their studies of different learning styles at the National Taiwan University of Science and Technology Chiu-Lin Lai and Gwo-Jen Hwang define the flipped classroom as, “a well-recognized learning mode that enables effective practice and interactions among teachers and students in the class by switching the in-class instructional time and out-of-class practicing time” (Lai and Hwang, 126). For some students, moving away from the traditional style of teaching, where lectures are the focus of in-class time, could benefit their educational success in a variety of ways. For the students that struggle in a traditional classroom setting, the flipped classroom could help them develop into more successful students. Each student has a unique learning style and needs; flipped classrooms have the capability of accommodating most students’ individual needs. Although traditional teaching styles can be effective, active learning with a flipped classroom approach could help improve classroom performance, retention rates, as well as assist in post-educational preparedness.

Some experts are now realizing that alternative learning styles such as the flipped classroom might be able to improve student’s performance in the classroom. In a study conducted by Ferri, et al. in an engineering circuits class at the Georgia Institute of Technology, the authors discuss the effects of using hands-on activities in a flipped classroom environment. Their article examines a circuits class with approximately six-hundred students enrolled throughout the fall, spring, and summer semesters. The class was structured with the flipped classroom method where students were supposed to “watch online videos prior to the class

period” (Ferri, et al., 6). To supplement these online videos, students would begin each class with a two minute quiz, move into working on worksheets, listening to mini-lectures, and performing hands-on labs. The authors examined this structure, primarily the hands-on labs, to determine the correlation between interactive learning and classroom performance.

In this style of flipped classroom a heavy emphasis is placed on hands-on labs. According to the article, “the main objectives of the labs are to enhance student learning of the basic concepts and to increase student confidence in practical application of the theoretical content of the course” (8). In other words, the point of the hands-on activities is to improve students’ performances in applying concepts learned through lab experiments, improve their retention rates, and make students more comfortable in using concepts outside of a laboratory setting. With the current generation of potential students growing up using technology almost everyday the need for more hands-on activities is greater than ever. According to research conducted by Ferri’s team, “memory and recall are dependent on the depth of mental processing during the learning process” (4). To clarify, in a situation where the learner has to process information more thoroughly to understand what is happening, as one would in a hands-on lab, their ability to recall that information would be greater as a result. With this in mind, it becomes apparent that there are many benefits regarding the flipped classroom when it comes to retention rates as well as classroom performance. When using a flipped classroom, there is more available time in class to perform labs. More time to perform labs allows for more active learning; which, in turn, can lead to higher retention rates as well as improved classroom performance.

The results of the experiment conducted by Ferri’s team confirm that active learning, specifically in a flipped classroom approach, does have a positive impact on classroom performance. One set of results collected showed that all students above the ninth percentile

performed better on basic concept questions by 7.9% to 20.4% (16). The statistical evidence collected agrees with the idea that an active learning environment should improve classroom performance by a significant margin. In addition to the improved test scores, these results indirectly show that the flipped classroom played a role in the improvement of student retention rates. In this case, using active learning method instead of a traditional learning method helped a large group of students improve their classroom performance as well as their retention rates.

Another improvement that classrooms with active learning methods can have on students, besides classroom performance, is the ability to prepare students for post-educational success. According to J. Patrick McCarthy and Liam Anderson in their article “Active Learning Techniques Versus Traditional Teaching Styles: Two Experiments from History and Political Science” state, “active learning techniques yield many benefits - they are student-centered; they maximize participation; they are highly motivational; and they give life and immediacy to the subject matter by encouraging students to move beyond a superficial, fact-based approach to the material” (Anderson and McCarthy, 280). Essentially, a flipped classroom does not only assist in improving classroom performance and retention rates, but it also helps students gain valuable real world preparations. Similarly, the research conducted by Ferri, et al., show that, “hands-on activities show a positive impact on student learning and on student confidence for students in the middle and upper categories of performers” (Ferri, et al., 23). The results of their tests indicate that active learning in a flipped classroom environment can actually improve classroom performance, retention rates, and post educational preparedness.

In a similar test described in “The Link Between High-Impact Practices and Student Learning: Some Longitudinal Evidence” written by Kilgo et al., the authors examine the post-educational implications of active learning styles. In their study, the authors examined data

collected from the Wabash National Study of Liberal Arts Education. Studies conducted by the authors show that, “active and collaborative learning as well as undergraduate research had broad reaching positive effects across multiple liberal arts learning outcomes, such as critical thinking, need for cognition, and intercultural effectiveness” (Kilgo et al., 509). These attributes, while being beneficial to classroom performance, are also major factors in success outside of the education system. For example, when in the workplace one must be able to think critically to solve complex problems, teams must work with cognition in order to function as a unit, and intercultural effectiveness is a necessity in any collaborative situation. In other words, learning these skills before entering the workforce is beneficial to students because they will have learned how to collaborate with others effectively to complete a desired task.

While it is important to introduce collaborative learning in the classroom, there can also be problems if other teaching styles are not considered. One possible active learning style is the POGIL method. The POGIL method stands for Process Oriented Guided Inquiry Learning and is a form of the flipped classroom. In this teaching style the focus of in-class time is on group work. In the POGIL method the instructor has a very limited role in which they “serve primarily as a facilitator of group learning, monitoring progress and intervening when guidance is needed” (Baum, 28). While this could be beneficial in helping students to make decisions on their own, it can be harmful if a student does not understand at all what is being asked of them. For example, “if students appear to be struggling, the instructor may think it beneficial occasionally to insert a mini lecture to clarify content and to re engage students. Although this is a common practice, it is not an accepted component of the POGIL method” (28). This aspect of the POGIL method seems flawed because if a student, or a group of students, were falling behind then they would have to

visit their teacher individually sometime out of class where they may not have the same resources as they would in the classroom.

Baum conducted tests at an unnamed midwestern university where he examined the POGIL method in a class where students studied “how the human body acquires and uses energy” (28). Baum’s results revealed that the POGIL method showed no significant change in student performance, showing that, “the blended POGIL classroom was more efficient and economical of face-to-face time than the POGIL method alone” (31). In other words, the POGIL method alone cannot satisfy the needs of enough students collectively to prove effective; however, it can be effective when combined with some face-to-face interactions as most flipped classrooms do.

I agree with Baum’s results that the flipped classroom is not beneficial alone because I believe that it does not mimic the real world working environment well enough. In a standard flipped classroom, students are expected to prepare for what is being asked of them outside of the time scheduled to perform that task, much like a typical working environment. In a standard flipped classroom, if a student is unsure about what is being asked of them they can talk to their instructor to figure out what they need to do before performing the task. In the POGIL method, the instructor should be relatively vague with the student, so as not to help them too much. I believe that the POGIL method is flawed, because it would not help students prepare for the working environment and it is no more useful, alone, than the traditional teaching style.

When it comes to flipped classrooms and alternative learning styles, the general conversation is that the flipped classroom can be beneficial to student learning. In the articles “Effects of In-Class Hands-On Laboratories in a Large Enrollment, Multiple Section Blended Linear Circuits Course” and “The Link Between High-Impact Practices and Student Learning:

Some Longitudinal Evidence” both groups of authors make the claim that active learning and flipped classrooms can benefit students in the classroom, as well as in the working environment. Both claim that using a flipped classroom allows for more time to be spent on group learning and other traits that would prepare students for the workforce. In a similar manner, in “Using Active Learning to Teach Concepts and Methods in Quantitative Biology” written by Adolph et al., the authors make the claim that, “collaborative learning environments more accurately mimic the environments in which students will eventually contribute as workers in industry or academia” (Adolph et al., 939). What all three of these articles have in common is that they all show that a flipped classroom shows the capabilities to favor student learning, and frequently surpasses what can be done in a traditional classroom setting.

With all of the positive results from the testing, I firmly believe that the flipped classroom should be implemented in most higher education practices. I believe that by starting this form of learning in a student’s education career they will be better prepared to be productive and effective members of the workforce. Some of these practices, I believe, should also be implemented in middle/high school classrooms. An advantage to starting active learning early in a student’s academic career is because if that student decides not to pursue a higher education, then they are prepared to enter into the workforce and immediately be a productive member at their job. I wholeheartedly endorse active learning especially in the form of a flipped classroom. However, I recognize that there can be some apprehension to committing to a new style of education.

Up to this point I have been arguing that a flipped classroom approach will help improve students’ classroom performance, retention rates, and post education preparedness. I argue that a flipped classroom allows for more in-class activities such as labs, group projects, and other



active learning opportunities. Such active learning opportunities have been shown to improve students' performances in the classroom, improved information retention, and better preparation for the post educational world. While the flipped classroom has shown improvements over traditional lecturing styles, some students may argue that a flipped classroom will not benefit them as much as a traditional lecture would. For some lower performing students they may need the face to face interaction of traditional lectures, or may simply lack the motivation to work outside of scheduled class time. While these issues are completely valid, the flipped classroom can still help these students. In the flipped classroom students are introduced to the material before discussing it in class. This allows them to come to class with questions they may have in order to clarify any misunderstandings, and any continuing misunderstandings can be addressed by the professor in class or outside of the classroom. In the case of a lack of motivation, some styles of the flipped classroom are prepared for this. Some flipped classrooms will begin each class with a short quiz over the material that should have been covered before class. This can provide students with motivation to complete the assigned tasks in order to prepare for the quiz. In a case where a student is still not motivated to perform what is expected of them, it is hard to tell if the student would have received any additional benefit from a traditional classroom setting compared to the flipped classroom. Another countering viewpoint is school administrations. They may see the flipped classroom as too much work to be feasible. This viewpoint is understandable, because classes would have to be restructured and instructors may need additional training. Despite the validity of these concerns, I believe that while there are certain benefits to the traditional classroom setting, the flipped classroom can provide additional benefits such as improved classroom performance, improved retention rates, and preparation for life after education.

The majority of research done on active learning and flipped classrooms tends to come to the consensus that a flipped classroom would greatly benefit most students throughout their education career. In most of the studies that have been done, it has actually been shown that the flipped classroom has improved classroom performance and retention rates. These were shown through test results of sample classrooms that compared flipped classroom learning to a traditional lecture. In these tests the results showed that student performance increased approximately seven to twenty percent. Another way that some experts believe that the flipped classroom would benefit students is that it would prepare them for life after education. A flipped classroom addresses this in two aspects. The first is that it teaches students how to work effectively without direct supervision from their instructor. This can be helpful to go into the workforce with because more often than not, a supervisor will not always be around to hold someone's hand and help them through a difficult process. The flipped classroom can teach students to think efficiently and independently. Another way that the flipped classroom can help students in post education life is that it can allow for more group work during class. If students are more exposed to group work in school they will be able to develop compromising strategies, group harmony, and leadership. All of those qualities are a necessity for the workplace, and the flipped classroom can help students learn them early in their lives. In general, active learning strategies have proven that they can help students in a myriad of ways. While it is clear that there are some students who can perform well in a traditional classroom, it has been shown through multiple different tests that the flipped classroom can help a broad spectrum of students in many different ways. In conclusion, a flipped classroom would benefit many students in their education career, and with the proper motivation from current administrators and faculty the flipped classroom could become the new normal in education.

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