Building effective blended learning approach through flipped classroom

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Abstract
Flipped Classroom is an innovative teaching model, facilitated by recent advances in technology, is gaining popularity across college campuses, especially in college science, technology, engineering, and mathematics (STEM). This new model inverts or 'flips' the usual classroom paradigm, in that students learn initial course concepts outside of the classroom, while class time is reserved for more active learning. The main goal of a flipped classroom is to enhance student learning and achievement by reversing the traditional model of a classroom, focusing class time on student understanding rather than on lecture. To accomplish this, teachers post short video lectures online for students to view at home prior to the next class session. This allows class time to be devoted to expanding on and mastering the material through collaborative learning exercises, projects, and discussions. Essentially, the homework that is typically done at home is done in the classroom, while the lectures that are usually done in the classroom are viewed at home.

Keywords: Building, blended learning approach, flipped classroom

Introduction
The flipped classroom is a pedagogical model in which the typical lecture and homework elements of a course are reversed. Short video lectures are viewed by students at home before the class session, while in-class time is devoted to exercises, projects, or discussions. A flipped classroom is one where students are introduced to content at home, and practice working through it at school.

In this blended learning approach, face-to-face interaction is mixed with independent study via technology. Students watch pre-recorded videos at home, and then come to school to do the homework armed with questions and at least some background knowledge.

Concept of Flipped Classroom
The term "Flipped Classroom" was popularised by teachers Bergmann and Sams at Woodland Park High School, Colorado, in 2007 where they adopted a strategy to reverse the timing of homework and lectures. Video lectures were provided for students before class and then exercises (homework) was done in class under supervision.

The concept behind the flipped classroom is rethinking when students have access to the resources they need most. If the problem is that students need help doing the work rather than being introduced to the new thinking behind the work, than the solution the flip ped classroom takes is to reverse that pattern. This doubles student access to teachers – once with the videos at home, and again in the classroom, increasing the opportunity for personalization and more precise guiding of learning. In the flipped classroom model, students practice under the guidance of the teacher, while accessing content on their own.

The Flipped Classroom is
- A means to increase teacher contact time.
- An environment that increases student responsibility.
- Blending of direct instruction and constructivist learning.
- A class where all students are engaged.
- A class where absent students won’t fall behind.
- A class where all students are engaged in their learning.
Diagram showing the Learning opportunities of the flipped classroom (adapted from Gerstein)

The 4 Pillars of Flipped Learning are
- Flexible Environment
- Learning Culture
- Intentional Content
- Professional Educator

Flexible Environment
Flipped Learning allows for a variety of learning modes; educators often physically rearrange their learning spaces to accommodate a lesson or unit, to support either group work or independent study. They create flexible spaces in which students choose when and where they learn. Furthermore, educators who flip their classes are flexible in their expectations of student timelines for learning and in their assessments of student learning.

Learning Culture
In the traditional teacher-centered model, the teacher is the primary source of information. By contrast, the Flipped Learning model deliberately shifts instruction to a learner-centered approach, where in-class time is dedicated to exploring topics in greater depth and creating rich learning opportunities. As a result, students are actively involved in knowledge construction as they participate in and evaluate their learning in a manner that is personally meaningful.

Intentional Content
Flipped learning educators continually think about what they can use the flipped learning model to help students develop conceptual understanding, as well as procedural fluency. They determine what they need to teach and what materials students should explore on their own. Educators use intentional content to maximize classroom time in order to adopt methods of student-centered active learning strategies, depending on grade level and subject matter.

Professional educator
The role of a Professional Educator is even more important, and often more demanding, in a Flipped Classroom than in a traditional one. During class time, they continually observe their students, providing them with feedback relevant in the moment, and assessing their work. Professional Educators are reflective in their practice, connect with each other to improve their instruction, accept constructive criticism, and tolerate controlled chaos in their classrooms. While Professional Educators take on less visibly prominent roles in a flipped classroom, they remain the essential ingredient that enables Flipped Learning to occur.

Advantages of Flipped Classroom
Students have more control
In a flipped classroom, it is possible for students to have increased input and control over their own learning. By providing short lectures at home, students are given the freedom to learn at their own pace. Students may pause or rewind the lectures, write down questions they may have, and discuss them with their teachers and peers in class.

It promotes student-centered learning and collaboration
This model encourages students to teach and learn concepts from each other with the guidance of their teachers. By allowing students to partake in their own learning, they are able to own the knowledge they achieve, which in turn builds confidence.

Lessons and content are more accessible
By making video lectures available at all times online, students who are forced to miss class due to illness, sports, vacations or emergencies, can catch up quickly. This also gives teachers more flexibility when they themselves are sick and also eliminates make-up assignments.

Access is easier for parents to see what’s going on
Unlike traditional classroom models, flipped classrooms give parents 24/7 access to their student’s video lectures. This allows parents to be better prepared when attempting to help their students and gives them insight into the quality of instruction their students are receiving.

A self-learning model
A flipped classroom allows students to learn on their own time and at their own pace. This allows you to give them more one-on-one instruction as well as give your students the opportunity to ask questions about the subject matter that they find confusing or difficult.

Building Teamwork Abilities
A flipped classroom allows students to have more time for
collaborating with other students which can be a great learning experience for the students and as a way for them to build their teamwork abilities.

Opportunities for reviewing previous lectures
When a student is watching a video lecture, for instance, the lecture is free of interruptions to distract the students and can be replayed as often as the student would like. This extends to when a student is preparing for an exam as they can go back and review previous lectures.

Enables Brainstorming
After students engage with a digital lesson or watch a video at home, they can brainstorm questions to ask you which can open the floor for a discussion about anything that may have been unclear or confusing. Coming to class prepared with ideas and questions is a great way to jumpstart the class and share ideas between students.

Increase in comprehension of the subject
Often times, multiple teachers are teaching the same course. If you have all created a flipped classroom, you can give students access to different teachers’ digital content and videos in order to increase their comprehension of the subject matter. By allowing students to have access to multiple styles of teaching, this will increase their comprehension of the subject.

Disadvantages
It can create or exacerbate a digital divide
One of the most prominent issues is the necessity for students to have access to a computer and Internet in order to view the lectures. This is particularly hard on students from low-income districts who already have limited access to resources.

It relies on preparation and trust
There is also the concern that since flipped classrooms are dependent on student participation, one must trust students to watch the lectures at home. Unfortunately, there is no way to guarantee students will obligate or cooperate with the flipped model.

There is significant work on the front-end
Additionally, there is a concern that implementing a flipped classroom adds an extra workload on teachers, as there are several elements that must be integrated carefully to allow the class to flourish. Responsibilities include taping and uploading condensed lectures, which take time and skill, and introducing activities in the classroom that will enhance the subject matter as well as motivate students to participate and prepare for class.

Not naturally a test-prep form of learning
Teachers and students are still required to spend a sizable portion of time preparing for state mandated testing, which in turn interrupts the flipped classroom process.

Time in front of screens-instead of people and places-is increased
There are some who believe that if every teacher starts flipping their classrooms, students will spend hours in front of a computer watching the lectures. One may argue that this has the potential to cause serious problems to student’s learning processes, as not everyone may be as adept to learning through a computer.

Heavy reliance on student motivation
The flipped classroom acknowledges that everyone learns at different paces, which is why it utilizes a learn-at-your-own-pace style of education. But this mode of operation relies heavily on the principle that students are self-motivated. Some students are not as motivated as others and this method of teaching may allow those less motivated students to get less done.

Keeping everyone on the same subject can get tricky
While teachers can assess where each student is in their education and even group them accordingly, it would become rather tricky to make sure everyone is learning at a steady pace.

Testing will become difficult
Tests are usually given out to everyone at the same time in order to judge how much they have learned over a period of time and to ensure that they can keep up. If students are operating under the flipped classroom model, they will each be approaching tests at different times. This will also allow students to procrastinate on their learning when they are dreading the next test.

Internet accessibility fluctuates
A flipped classroom requires of internet accessibility outside of the class room. Internet is not always easily accessible for everyone which can make it difficult for some students to access lectures.

Conclusions
An inverted or flipped classroom can play a key role in modern education by freeing time for learner-centered activities and encouraging students to become independent self-learners.

References
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