

Flipping Great or Flipping Useless? A review of the flipped classroom experiment at Coventry University London Campus

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Abstract

It is vital for teachers to keep abreast of new innovations to maintain student expectations and continuously improve performance in the classroom. A major development in recent pedagogical practice has seen the invention, development and implementation of the flipped classroom. Advantages include greater flexibility for students as they can study at their own leisure. In addition, there are opportunities for teachers to make seminars more interactive and to focus on exploring topics in greater depth after fundamental concepts have been practiced in a flipped class. This scenario has also led to greater student engagement and motivation and reduced tardiness and attendance issues. However, there are several disadvantages regarding its use. The most prominent criticism is that it is not possible to ascertain if a student has actually completed a flipped class until they attend a seminar. The whole flipped model is also wholly reliant on students having the motivation to do work in their own time. The creation, development and implementation of flipped classes can also be labour-intensive and onerous for teachers with already busy schedules. Further criticisms include the lack of instructor contact and necessity for developers to possess requisite technological skills. This study uncovered both positives and negatives regarding its efficacy with a number of students doubting its value in enhancing academic standards. Overall student performance and satisfaction levels were also lower when compared to the previous term when the same module was not flipped.

Keywords: Flipped classroom, pedagogy, engagement, motivation, technology

Introduction

This paper examines the usefulness of the flipped classroom from a Higher Education (HE) context using Coventry University London Campus as a case study. The article intends to evaluate the strengths and weaknesses of arguably one of the most interesting innovations in recent pedagogical practice.

The paper is divided into four sections. First, a description of the teaching and learning context is given. After that, there is a review of the relevant literature. Then I present and analyse the collated data. The final section reflects on the overall process.

Teaching context

The study took place at Coventry University London Campus (CULC) as part of my PGCHE (Postgraduate Certificate in Higher Education) research.

CULC's learning and development strategy places a great deal of emphasis on utilising technology to engage students in their studies although this was the first time the flipped classroom had been incorporated into the curriculum.

It was decided to experiment on an undergraduate cohort as these students were viewed to be more appropriate 'digital natives' than their older postgraduate counterparts. 28 students studying a BA in Global Business participated in the project. 16 of these students were Chinese, 5 were Nigerian, 2 were Indian, 2 were Thai with 1 student each coming from Jordan, Bangladesh and Malaysia.

In previous terms, students were instructed to attend weekly lectures. However, for one 10-week term, the students above were requested to come to class for 6 weeks and study the lecture material at home for the remaining 4 (in weeks 2, 4, 6 and 8). They attended seminars as normal.

The 4 flipped classes included videos, quizzes and games to keep the students as engaged as possible (see Figure 1 below):

Figure 1: Flipped Classroom screenshot



The rationale for initiating the project was to improve upon student performance, attendance and engagement as previous studies have demonstrated the flipped classroom is able to have a positive effect on these areas.

The research questions were therefore as follows:

1. To what extent does the flipped classroom benefit teachers and students?
2. In what ways can the flipped classroom enhance student engagement?
3. What are the disadvantages of implementing the flipped classroom?

What is the 'Flipped Classroom'?

There have been a number of definitions of the flipped classroom with most concurring that it provides students with greater flexibility in their learning as they are able to complete their studies in their own time and in their own preferred locations. For example, Hamdan *et al.* (2013, p.4) comments:

'In the Flipped Learning model, teachers shift direct learning out of the large group learning space and move it into the individual learning space, with the help of one of several technologies'.

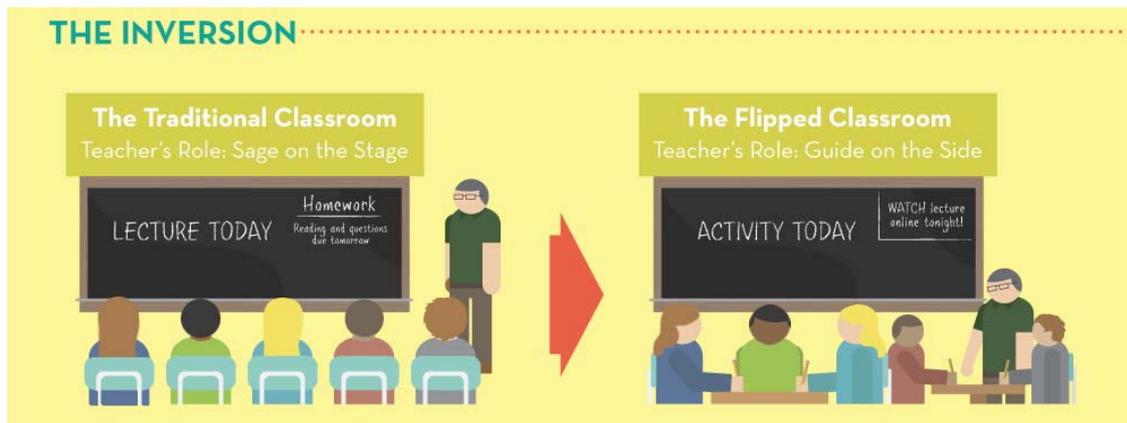
Furthermore Knewton (2013, no page) states:

'The flipped classroom inverts traditional teaching methods, delivering instruction online outside of class and moving 'homework' into the classroom'.

On the other hand, Stumpfenhorst (2012) argues the flipped classroom has no universal definition due to the fact that educators tend to use their own unique strategies when engaging students.

Figure 2 below illustrates how the flipped classroom works in practice:

Figure 2: The Flipped Classroom



Source: Knewton (2013)

As can be seen above, instructors are no longer ‘a sage on the stage’ with greater emphasis placed on teachers to be ‘a guide on the side’ meaning they are less visible in the classroom and are now seen more as facilitators in the student learning process.

Mangan (2013) adds flipped learning enables students to study at home on a tablet, laptop or desktop computer with videos viewed as the most popular and effective method of maintaining concentration. Dyck (2013) states the flipped classroom permits students to review a topic by either rewinding a video or reviewing slides in their own time. As Talley and Scherer (2013) posit, this function positively contrasts with regular lectures where the dialogue tends to be one dimensional as students are generally offered little opportunity to review, engage or interact.

As Acedo (2013) explains, the flipped classroom is able to provide opportunities for students to learn in their own time via activity-based learning strategies. The use of technology is integral to the success of any flipped project and greatly influences how lessons are delivered.

Wallace (2014) states it is able to provide students with more flexibility in their learning and allows greater ownership of learning through preferred learning styles. Indeed Crouch (2014) adds student performance when utilising the flipped classroom tends to be better when compared to the results from traditional face-to-face instruction. The flipped classroom has also changed the distribution of teaching time with instructors now able to focus on more interactive activities that encourage deeper learning in classes.

Advantages of the flipped classroom

There are a number of advantages for both students and teachers when using the flipped classroom. These particularly include better student engagement and greater flexibility of learning.

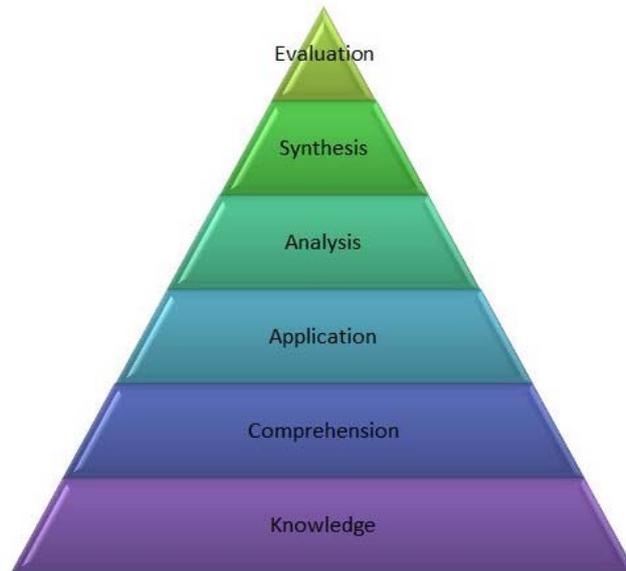
Better student engagement

Tucker (2012) asserts the flipped classroom’s most successful function is its ability to enhance student engagement in a subject. Hamdan *et al.* (2013) concur when stating students have been able to increase their critical thinking skills and participation in lessons. Taller and Scherer (2013) and Wallace (2014) similarly claim that it has revolutionised lesson quality due to its effect in increasing student focus.

Moreover, Fulton (2013) states that teachers are able to review students’ flipped work and identify areas which they can focus on in seminars. Fulton (2013) claims this function to tailor and personalise material (such as focusing on complicated concepts) in seminars and identify errors in thinking, allows teachers the opportunity to create more specific one-on-one interactions with students who are having difficulties.

Marshall and DeCapua (2013) argue the use of a flipped model allows students to focus on the higher, more complicated levels of Bloom's taxonomy (see Figure 3):

Figure 3: Bloom's taxonomy



Source: Rehage *et al.* (1994)

Hamdan *et al.* (2013) elucidate this feature also allows struggling learners better opportunities to comprehend a topic prior to a seminar and therefore offers more openings to interact and participate in class.

Greater flexibility of learning

Acedo (2013) argues the flipped classroom has enabled students to have greater flexibility in their learning. Brunsell and Horejsi (2013) concur when elucidating it has given students greater freedom in their learning choices as it allows them to learn at their own pace. Steed (2012) adds this form of learning is particularly beneficial for slower students who are now able to review material as many times as they like so that they can increase understanding. Steed (2012) believes this capability has also improved learner behaviour in class as students are less likely to misbehave if they understand a subject. Moreover, Fulton (2013) states the flipped classroom has also demonstrated its flexibility in situations where teachers or students cannot go to class. This is because if a teacher or student is unable to attend a lesson due to illness or another reason, that class would invariably be cancelled.

Acedo (2013) proffers that the flipped classroom also has benefits for parents. This is because they are able to see the content that their children are studying at first hand and will be more knowledgeable and prepared if they help them with homework.

Disadvantages and issues

Although there are several pedagogical and practical benefits to be had when using the flipped classroom as mentioned above, there are also a number of disadvantages. These include student motivation to participate, technological issues, time to create material and lack of instructor contact.

Student motivation

As Johnson (2013) argues the success of the flipped classroom is totally reliant on students possessing the motivation to complete tasks in their own time. However, if students do not watch

videos or complete quizzes as instructed they will be unable to investigate the subject in greater depth in the subsequent seminar. Indeed, Acedo (2013) elucidates certain students could take advantage of a flipped classroom and instead of reviewing and studying material at home, may use this time for unrelated and non-studying purposes.

Moreover, Wallace (2014) believes students with an aversion to technology may find a flipped class to be not useful and therefore demotivating. Although Wallace (2014) claims the vast majority of learners welcome technology use in their education, it should also be acknowledged that a minority of students prefer to learn in a more traditional classroom setting.

Technological issues

This section can be separated into two sub-sections – general technological problems and instructor issues.

General technological issues

Nielsen (2012) states the success of the flipped classroom is wholly dependent on having a fully functional smartphone, laptop, tablet or computer and if a student does not have one of these (or one that is working correctly) they will not be able to study. Furthermore, Johnson (2013) argues a strong Internet connection is also a necessity to participate and those who live in areas with weak connections may be placed at a disadvantage.

Instructor issues

As Johnson (2013) postulates, instructors creating and operating flipped classes must have a certain level of computer literacy to be successful in its design, implementation and operation. Johnson (2013) adds instructors who are not used to using technology on a regular basis may struggle to participate effectively.

Time to create material

Burton (2013) asserts the time needed to create the material (such as PowerPoint slides and videos) can be often labour intensive and onerous for many teachers, particularly if they are not comfortable with using learning technologies.

Johnson (2013) concurs when stating the time invested into the creation of flipped lessons is not always justified. In addition, Herreid and Schiller (2013) add teachers may not view the creation of flipped classes as a priority in their daily duties with certain instructors choosing to focus on other tasks.

Lack of instructor contact

Although Johnson (2013) views this form of learning as an effective strategy in providing a balanced learning environment, Fulton (2013) argues students much prefer face-to-face time with their teachers. Fulton (2013) adds students learn more effectively in a classroom environment as they are able to ask direct questions to their teachers and peers should they need to, whereas this capability is absent in the flipped classroom.

Riley (2014) proffers only teachers are able to build relationships with students with this single ability seen as one of the cornerstones of effective teaching. Riley (2014) asserts instructors are able to identify nuances and misconceptions whereas a computer cannot. Teachers can also personalise learning for students and scaffold new vocabulary and concepts.

Johnson (2013) argues a serious criticism of the flipped classroom is the inability for students to ask immediate questions when they are unsure. Johnson (2013) acknowledges questions may be asked when a student attends the seminar after a flipped class although cautions it is likely many learners will forget to some extent the specific issue that troubled or confused them.

Research methods

In order to obtain relevant data direct from the students who participated in the flipped project, a focus group strategy was employed after each of the four flipped classes. As Litosseliti (2003) argues, focus groups can be a more natural environment for respondents to participate in when compared to other research methods. On the other hand, it is acknowledged that the responses of some participants may have been influenced by others (Krueger, 1994).

In order to maintain consistency in the research findings, a structured interview script was used. In each focus group, students were requested to answer the following 5 questions:

1. What they thought of the quality of the flipped material for that week.
2. How they thought they performed.
3. How they actually did? (Students received instantaneous feedback)
4. Their interpretations of the effectiveness of that particular flipped class when compared to a regular lecture.
5. How they managed their time and how long they could focus on the topic.

In addition, it was possible to track how many students participated in each class with the software (Articulate) that was used. This was done after each class to identify how many students were actively studying in their own time and for how long.

Results

This section will offer reflection on both my experience and those of the students who participated.

Teacher's perspective

From this experience, the flipped classroom has both advantages and disadvantages echoing many of the arguments from the literature review. I found the process useful for several reasons. Firstly I was able to use the time when students were completing flipped activities for other duties. Moreover, some students were generally (although not always) better prepared for the seminar than previously' meaning I could stretch them further in subsequent classes.

On the other hand, it was very time-consuming to construct with the first set of slides taking approximately 20 hours. There was also no effective way of ensuring students completed the flipped activities. In seminars I did not particularly notice if the cohort had any more understanding of a topic after taking part in the flipped class. In fact I was rather disappointed that some students had either not completed their work or had done it quickly without digesting the relevant information. This behaviour was replicated by the same students after a non-flipped class indicating it had no real effect in improving engagement in individuals who usually did not participate.

Student satisfaction

Student satisfaction actually reduced to 82% when compared to the previous term when 89% gave positive feedback. This was rather surprising as the statistics were expected to be higher.

Positive responses

10 of the 12 students in the focus group stated the flipped classroom was more convenient, correlating to the arguments of Brunsell and Horejsi (2013). These students enjoyed the flexibility that was offered and the fact they could study when they wanted rather than at a specific time. Indeed one student commented:

'I hate morning classes and much prefer it (the flipped classroom) as I can learn more when I am not tired'.

A similar statement was also made by another student who enjoyed the fact that he could review material several times over – something that is not possible in a traditional lecture.

The interactive nature of the flipped classroom was also praised by several respondents. The quizzes on culture were viewed as fun and were often done again so they could get a perfect score. The inclusion of fun videos from Youtube and Daily Motion was also quite popular with 6 out of the 12 participants stating they enjoyed this aspect the most.

Another major positive finding was the fact that the students found the exercises in the flipped classroom more enjoyable than in-class activities. For instance one respondent stated:

'I really like to use technology in my studies. It is much more interesting than doing word searches or crosswords.'

Negative responses

Although there were positive responses as mentioned above, there were still several students who did not find the flipped classroom useful. The first student stated that she actually forgot to do the first flipped class and did not enjoy the remaining 3 classes as she much preferred to see both her friends and her teacher when she was learning. This resulted in a lack of motivation and reluctant participation.

Another student was similarly unimpressed and was also unhappy with the lack of face-to-face contact. This comment was made by two other students who stated they prefer to meet their tutor so that they can ask questions if they do not understand something. They additionally stated that the content was overly simplistic and not challenging enough.

Moreover, 4 participants commented they did not have the motivation to study by themselves when at home as they were easily distracted by the Internet. Indeed one respondent stated:

'I kept putting off doing it as I kept finding other things to do'.

Several students rather honestly explained they were *'too lazy'* to participate and as attendance was not taken for a flipped class they decided not to do it.

Student participation

Student participation fluctuated. It initially started off at 79% for the first class and dipped to 72% for the final lesson. Students were reminded to participate each week verbally and by email, although it appears the reminders had limited or no effect.

Student performance

Student performance also declined with 72% of students passing the module when compared to 76% who passed the same, non-flipped module the previous term.

Conclusion

Judging from the results of this project, it appears there may not actually be a paradigm shift in the near future regarding how classes are taught. It can be argued that the experiment was not 'flipping great' nor 'flipping useless' but instead rather disappointing as better results were expected.

The research questions will now be concluded:

1. To what extent does the flipped classroom benefit teachers and students?

In terms of positives, there are tangible advantages with the flipped classroom offering instructors greater flexibility on how they can teach their lessons with seminars able to become more interactive and targeted on addressing specific student weaknesses. This potentially increased level of engagement can be stated as one of its greatest strengths.

Students are arguably able to benefit the most from the flipped classroom. This is because they can now study when and where they like and review material when necessary – something which is not

possible in a traditional classroom setting. Attendance levels and student progression rates can improve, although they were not evidenced in this study.

2. In what ways can the flipped classroom enhance student engagement?

This question is more difficult to answer. Whereas some students enjoyed the freedom of working when they wanted to and performed better in seminars, others did not take it so seriously and were not as engaged as expected. It was hoped the interactive quizzes and videos would be the most engaging aspect, although this was only true with some students, slightly contradicting the arguments of Mangan (2013) and Acedo (2013). The lack of preparation for seminars was another disappointing outcome with several learners appearing not to have studied the flipped class at all, making it impossible to utilise Bloom's taxonomy. The issue of not being able to monitor if students had done their work was arguably the most frustrating aspect of the whole experiment.

There was also no discernible improvement by culture with the Chinese students (the largest group) demonstrating the overall lowest forms of engagement. The results were mixed with the other nationalities.

3. What are the disadvantages of implementing the flipped classroom?

In terms of negatives, it is argued that teachers need to be competent with technology to develop, implement and administer the flipped classroom. Furthermore, the time taken to create the flipped classes was extensive. It was at times as there is no way of policing whether a student had completed a flipped activity or had not.

There are also various weaknesses with the flipped classroom from the perspective of the student. For instance, many students actually preferred face-to-face lessons where they could question teachers in order to clarify their understanding – a situation that is not possible in flipped classes. Furthermore, certain students actually preferred the traditional classroom environment and were not overly comfortable using technology in their studies. Some learners also preferred to interact with other students rather than with a computer.

Limitations

There are a number of limitations to this research which will now be detailed.

The focus group included only 12 of the 28 students meaning these results may not be wholly representative. Furthermore, the majority of the 28 students were Chinese indicating the analysis might not be balanced from a cultural perspective.

It is also contended that as this topic is evolving all the time due to advancing technology acceptance, the literature analysed above is effectively a 'snapshot' of recent and current pedagogical practices. Therefore, it is possible future research may unearth different topics of discussion which was not possible to investigate in this report.

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