# ‘Flipping the classroom’: a theoretical and practical exploration

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## Abstract

This case study explores the use of the ‘flipped classroom’ in the context of an undergraduate Academic Preparation course. The initiative inverted delivery of the course, in that the students studied the formal content as homework and, small group discussion and individual support was provided during face-to-face classroom time. There is very little research evidence in support of the recommendations that by flipping the classroom overall student learning is improved. Therefore this study explores the concepts that underpin the flipped classroom both theoretically and practically, and reports on student feedback of the initiative. As a group the students expressed low levels of satisfaction with the course delivery but individually students reported a strong sense of personal achievement.

## Introduction

Current neoliberal policies bring higher education into a complex relationship with economics partly because of the introduction of tuition fees for which universities are able to compete. What is perhaps less clear however is a common understanding of what the university is and, what it is to become, as it adapts to a world of explicitness when all activities are subject to measurement, precise descriptions, rules and performance which can be determined objectively (Barnett, 2011). Such transitional processes have also resulted in an increasing awareness of a need to change what happens in the classroom along with a predictable need for a greater sense of convergence between technology and teaching, largely because of changing student expectations. Academics search for new and imaginary ways to engage students, meet their individual needs and aspirations, and at the same time meet the key performance indicators of competing organisations.

There is currently an increasing level of interest in and support for a system of teaching that makes an explicit dependency between technology and teaching called ‘flipping the classroom’. The term describes an approach to teaching that critiques the role of traditional methods of didactic pedagogy. Rather than relying on the presence of the academic in the lecture hall and students who passively sit through the resulting lengthy lectures, the approach quite literally means that the formal content of the course becomes an online lesson which is studied by the student at home. This can take many forms, for example, video recorded lectures and interactive web-based materials including quizzes which are designed and organised with the intention of delivering via a virtual learning environment (Bergmann, Overmyer, & Wilie, 2012). When in class the student engages in activities that would be associated with homework, for example, applying learning to different situations or problem solving in collaborative groups (Bergmann & Sams, 2012). The academic is then free to provide face to face support to individual students, to correct misinformation and to organise small group activities.

The assumption underpinning such a 'flipped' approach is that it will result in more learning. Whilst presently there is no empirical evidence for this, Berrett (2012) explains why there is such an interest in 'flipping' in universities. He sets his explanation in the context of student expectations for smaller class sizes, a greater demand for personal attention from the academic and key performance indicators that demand more evidence of student achievement. The economic reality of course, is that class sizes cannot decrease or staff to student ratios increase and therefore the large group lecture is not likely to disappear (Berrett, 2012). However the ubiquitous ownership of technological devices by students does offer different possibilities when seeking an alternative to the traditional lecture, and open educational resources (OER), which are widely available at low or no cost, offer an attractive alternative to PowerPoint presentations (Baron, Willis, & Lee, 2010). Unavoidably the role of the academic changes in the 'flipped classroom' as content no longer drives pedagogy and there is a shift to more efficient use of time and facilities.

Innovative ideas that link teaching and technology are not new, the key objective for educationalists however is to explore the possibilities and effects of those ideas (Callon, 2012). Deterministic discourse presents technology use in teaching as a solution that aims to solve problems and meet student needs. The purpose of this article, however, is to explore the assumptions both theoretically and practically, that underpin 'flipping the classroom' not only in the context of technology, but social, cultural and epistemological issues also.

## Theoretical exploration

The factors that influence the success of technological innovations in educational contexts are well documented to be the conflict that arises between the organisational rules (or regulative discourse) that define and place control over the application of technology, and the students whose needs and desires are influenced by those who manage higher education organisations (Callon, 2012) (Jump, 2011) (Bernstein, 2000). However, out of this conflict comes the research and evaluation that challenges the deterministic discourse that technology development in teaching is a linear process. In reality it is a multidirectional trajectory of successes and failures from the initial, innovative idea to full acceptance (Kline & Pinch, 1985). There are of course a considerable number of casualties along the way.
In his famous essay 'the Death of the Author' Roland Barthes (1967) states that it is the death of the author that gives rise to the birth of the reader and this proposition offers a very useful analogy for exploring the 'flipped classroom'. In his essay he argues that any writing should provide a space that encourages the reader to engage with the text in a critical way, asking questions such as 'who is the writer?' 'is the author setting the writing in a personal ideology influenced by their own personal experiences?' and 'how is the world viewed by this author?'. Without such opportunities for critique any writing becomes the invention of just one voice – the author (Barthes, 1967). In universities the role of the narrator is blurred by what Barnett (2011) describes as the 'scientific university' as a defining form that universities currently aspire towards. In the context of this dominant position of the hard sciences and a capitalist ideology, the prestige of the individual academic is of great importance to the university community. The resulting image of teaching in the university is accepted to be centred upon the academic who delivers a collection of teaching material that is situated, preferably, in their own research achievement. Rather than the delivery of content being admired as a pedagogic performance it becomes the voice of the academic who is ultimately

deemed to deliver confidence to the student. Perhaps, because of these cultural pressures academics, stereotypically, tend to work alone when constructing their teaching material, in some cases they may involve others, but mostly they decide upon a collection of resources and teaching activities. They may work with content that they know best, either because it is linked to their own personal experiences, or because they feel able to construct from their own knowledge and then go on to use the tools and technologies that they are most familiar with (Lane and MacAndrew 2010). Therefore the critique of the traditional university teaching methods i.e. the lecture, is that students are unable to engage with content with a sense of individual criticality. The argument therefore is that the voice of the author should be removed from formal course content as the true purpose of teaching is learning, and the person who needs to understand it completely is the student.

> 'the unity of a text is not in its origin, but in its destination' (Barthes, 1967, p. 6).

'Flipping the classroom' as a teaching approach for formal content relies upon material that is designed for online learning, which means that by definition there are students and learning materials but no obvious teacher (Lane & McAndrew, 2010). The complete death of the author is not necessarily an assumption that underpins all 'flipped classroom' initiatives. There are a number of ways that the 'flipped classroom' can used as a model of instruction (Hamdan, McKnight, McKnight, & Arfstrom, 2013), all of which strive to move teaching into an individual learning space. The presence of the author may be necessary in order for learning to be achieved and in which case the individual academic may choose to remain central to the delivery of the course, both in the online component as well as the face-to-face session. Online teaching in this case may include live video recordings of the academic's own lectures, personally narrated screencasts to record teaching and demonstrations and their own prepared slide presentations with annotations and podcasts (Hamdan, McKnight, McKnight, & Arfstrom, 2013). This model offers greater flexibility to students who can access the material at a time convenient to them, however the birth of the student remains necessary in order to formulate independent understanding and opinions, as they grasp the teaching materials.

An alternative model, and the one chosen for this case study, is that the academic curates lessons from Internet sites of readily available materials such as OER content or sites such as the Khan Academy etc. in an educational way. The role of the academic in this situation is to structure and support learning experiences for the students and to identify suitable content in order for the online environment to become an educative experience (Lane & McAndrew, 2010). At a time of diminishing budgets the cost of providing the student with high quality, online, teaching materials such as video recorded and edited lectures is potentially too high, (Baron, Willis, & Lee, 2010) therefore there is a strong argument, and a certain sense of inevitability, for the use of open education resources. Equally the 'flipped classroom' provides a useful forum for the rising number of open educational resources currently available.

Open education resources mix the powerful communication and visualisation abilities of the Internet and the web as a way of creating teaching materials. They can include text, images, audio, video, simulations and games and can be designed and created by anyone in any part of the world, for very little cost. The Creative Commons license allows the material to be

shared easily, and then remixed and constantly updated by a community of authors and editors (Burns & Baraniuk, 2008). Consequently there is a proliferation of open educational resources such as those offered by MIT, the Open University, JORUM and more recently Coursera and the Khan Academy, collectively attracting millions of users per month. However they question and possibly threaten the current status quo of the academic because they substitute language itself for the academic as a person, i.e. language now speaks, not the individual academic who traditionally delivered content in the lecture hall. Many universities like MIT and the Open University are looking for ways to enhance their reputation by using the Internet to give away their teaching materials for free (Wiley & Gurrell, 2009), but often use their own distinguished academics as personas in the online material.

The idea of removing the academic radically changes online teaching materials into a text that is created to be watched, listened to or read by the student, by default absenting the academic. The academic is integrated into teaching in such a way that they are no longer the subject of the teaching, which becomes a performance in itself detached from the person. As a result Barthes (1967) would argue that the text is not a 'line of words' that is expected to release an explicit meaning, but should provide a space for many dimensions, different kinds of presentations, many citations and may be from different sources of culture. The power of the academic then changes, it is to combine the different kinds of information with the aim of providing to the student a readymade elaborate dictionary that allows them to translate the language of the teaching material into new ideas that can be discussed and debated in the classroom. The academic is no longer a human being with a passion but the source of the dictionary from which the lessons are derived (Barthes, 1967). Therefore, it is no longer the role of the academic to decipher the teaching material as to do so is to impose the author on the writing and to close further interpretation by the student.

It is not coincidental that much of the current discussion about 'flipping the classroom' comes from science teachers (Bergmann, Overmyer, & Wilie, 2012) because it offers a way of combining a scientific way of thinking about knowledge with a need to recognise the influence of context, environment and human behaviour (Evans, 2011). For example students may learn that AIDs is caused by the HIV virus, but it is also necessary to learn that many factors including social, political and economic factors, affect whether a person goes on to die of AIDS. In other words it provides a possibility for students to learn about an external reality (in the formal online content) and then go on to learn that the world is complex and stratified into many layers of reality (in the face to face activities) (Ayers , 2011). Not only does this approach to pedagogy reject the view that all knowledge is given and independent of any socio-historic context but also moves away from the naïve postmodernist approaches of social constructivism that have become synonymous with technology use in teaching. Social constructivism rejects any objective view of knowledge and promotes the absurd idea that meta-theory is redundant, giving rise to relativism and the notion that all knowledge should be socially relevant. In relativism knowledge and knowing become entangled which means that the place of epistemology is at best unclear or at worst absent (Young, 2008).

'Flipping' offers the potential for lecturers to discuss, debate and reflect upon the way that complex disciplinary language and everyday language can be combined. This is essential if

students are to apply the principles of critical and ethical thinking (Letourneau & Allen, 1999). If the academic is clearly integrated into the text and the personal history of that academic author is present, then the text is explained in that context and all criticism becomes that of the academic rather than developing the skills of the student. In this context online material should be clear, well-designed, and good writing used, as an indicator by which to judge them, not the way that they are explicitly deciphered. The material should provide the student with access to explanatory knowledge that has emergent potential to take knowledge beyond the interest of specific groups to theoretically grounded practice (Ayers , 2011).

## Practical exploration: implementation

This case study is an analysis of an initiative that aimed to 'flip the classroom' as an approach to teaching a course delivered in the School of Health and Social Care. The course in question was a level five, one term, undergraduate course called 'Academic Preparation' which aims to induct students who have entry qualifications, such as a Foundation degree or a Diploma in Nursing and wish to complete the 120 credits required for an honours degree by studying at level six. A total of 33 students were registered to the course, all of whom were mature students, working in health and social care, as well as studying for the top-up degree in just one year. The Academic Preparation course is designed to be studied alongside the final project course and a research methods course, so that the students are supported as they discover and explore the resources available to them at the university, as well as being inducted into the language, skills and regulations that are required to be successful in the final year of an undergraduate programme.

A key aim of the course is to bridge any educational gaps therefore increasing the ability of the student to actively participate in their academic programme of study, by providing a learning environment that explicitly recognises prior learning and experience. Each student is supported in order to gain insight into their own learning needs and to reflect upon and improve learning and understanding. In order to do this they choose a topic of their own to research, in most cases this is linked to their final project course topic. The formal teaching content is presented online and takes each student, in a very active way, through the systematic process of finding information, recognising and making sense of research language, developing skills of analysing and critically appraising academic texts and then synthesising all of this into an assignment designed to meet the learning outcomes. The online teaching material, intended to be completed as homework, is made up of formal, directed tutorials, mainly OERs that had been reviewed and quality assured by the Open University and Jisc. These are supplemented by online tasks, again to be completed as homework, designed specifically to provide support and feedback about learning from the lecturer, and to engage students in collaborative discussion. During the weekly face-to-face classroom sessions the academic is free to support individual students, discuss problems and misconceptions as well as chat informally about issues raised by the students in small groups.

The course design was situated in a context of independent, student-led learning that provided a realisation of skills and knowledge for this course and the programme as a whole, meaning that the status of the student became more important than the status of the author

(Barthes, 1967) in that successful learning is due to their own endeavour and insight rather than the intellect of the academic. Barthes' essay explains that there can be no sense of independent thinking by the students if they can only see their learning through the academic's eyes, and they will gain little or no benefit from their learning on the course which will be automatically limited to the boundaries of that course alone. He goes on to argue that instead of making their own meaning to course content and how it links to their areas of interest and experience, students will become restricted to the academic's thoughts and opinions rather than their own.

It is also important, however, that the approach to delivery is set in a context that the students can recognise, in particular in anticipation that their expectations are that there is the continued presence of the academic in their learning. The process of 'flipping the classroom' was explained to the students at the first face-to-face meeting and the ensuing discussion gave a sense that aspects of this approach to teaching were seen positively. Mainly, this included the flexibility for students to move through the course at their own pace, to get feedback online as well as during the face-to-face meetings, to have easy access to online resources that were relevant to their programme of study and to be able to discuss their individual needs during the face-to-face sessions. The students were asked to discuss their expectations of the course online and the themes to emerge from the resulting forum were a desire to be more confident, more independent and to become more competent in accessing and using the university resources, which also involved making productive use of their study time at home. The process of 'flipping' appeared to have been received positively by the students and perceived to be relevant for their academic and personal contexts.

## Evaluation methodology

The main reason for evaluating any course is to improve the quality of the student experience. As a process, however, evaluation has become increasingly formalised because of a need for pseudo-scientific data that can be linked to pre-determined key performance indicators and economic drivers (Bamber, 2011). It can be argued that such evaluation processes simply weaken the boundaries between teaching practice and management activity, which in turn strengthens the boundaries between innovation and critical self-reflection by the individual academic (Krause, 2011). This is largely because over-simplistic performance indicators encourage risk management of teaching and reluctance by individual academics to try new approaches to teaching. Yet, in order to shape the student experience student feedback is necessary, that is feedback that will lead to a considered response as opposed to feedback that leads to a reaction and a possibility that positive initiatives will be abandoned as a result (Krause, 2011). The aim of evaluation in the context of this initiative therefore, was to gather different kinds of data that provided an insight into the level to which 'flipping the classroom' as an approach to teaching affected the experience of those students studying the Academic Preparation course.

Each student was asked to complete the institutional course monitoring form which is designed to monitor how teaching is experienced by students. This form gathers data about the quality of delivery, student engagement and the quality and relevance of the resources used. The questions are customer focused and the student responds to levels of 'happiness' (Saunders, 2011) by scoring each question using a five point Likert scale. Whilst the

questions are not related specifically to the learning outcomes of the course or to any change in student behaviour, the form is important as an immediate diagnostic tool. However as the initiative of 'flipping', in the context of this particular course, had specific learning outcomes, that is that the student would work independently by engaging with the online resources, then one of the key aims of the evaluation was to discover the quality of transfer of learning to other parts of the student academic programme and the extent to which the course produced changes in the attitudes and confidence of the students (Saunders, 2011). Therefore each student was also asked to write a 500 word reflective piece recording perceptions of their individual personal and academic development.

## Results

1. Institutional course monitoring form analysis

The response to the institutional course monitoring form was disappointing. Overall student satisfaction with the 'flipped classroom' approach to teaching was split equally between those who felt that it helped their learning and those who felt that it hindered their learning. The relevant highlights from the analysis of results are, 64% of students agreed that the broad purpose of the course was made clear to them and 82% of students agreed that the IT facilities and media resources for the course were satisfactory which suggests that the online resources were perceived to help learning. However only 49% of students felt that the workload provided by the course was satisfactory, meaning that 51% of students felt that it was unsatisfactory. The face-to-face meetings were organised in such a way to encourage small group work and individual support from the academic, however 66% of students disagreed with the statement that there were sufficient opportunities for asking questions and small group activities. This suggests that the format of these sessions requires considerable management and preparation by the academic, so that students are empowered to engage in the activities and feel in control of their learning.

The course was designed to sit alongside a research methods course and the final project course and therefore designed to promote explicit links to the skills and knowledge that students require for independent study at level 6. However only 50% of students agreed with the statement that the clear links between the courses were identified and 58% of students agreed that the course had been highly relevant in enabling them to do their job better. And despite prolific use of the online discussion forums by all students 66% of students disagreed with the statement that there were sufficient opportunities to share views and perspectives.

There was a very clear split between those who felt satisfied by their experience of learning on the course and those who felt dissatisfied. Berrett (2012) also reports similar responses by students in reaction to several flipped classroom initiatives. At Harvard, for instance, it was reported that the average score of a student evaluation from flipped classroom initiatives is about half what the same academic gets when using a traditional lecture. He also found consistent reports of student resistance, in that some embrace the flipped classroom, whilst many never do. However alongside these disappointing student satisfaction scores, many found that when analysing the results of assessment tasks flipping students outperform those who learn in only traditional lectures. Berrett proposes that it is

the cognitive strain that this approach to teaching imposes on students that seems to account for its success as well as student resistance.

2. Analysis of the individual reflections

Students were also asked to reflect upon their own personal development as a result of engaging in the course and to submit their responses to a private online activity. After reading and re-reading the written reflections a number of clear themes emerged. One of the key findings of the analysis related to the feelings of confidence. In most cases students described how their confidence had grown as a result of studying the course, and they attributed this to the acquisition of new skills and knowledge:

> ‘having the skills and courage to read research made me feel quite powerful’
>
> ‘I am not the same person that I was in the beginning’

In particular they all stated that they felt much more confident to critically appraise when reading and reflecting on how to apply research, both to their academic work and to their work in health and social care:

> ‘I have learned not to take anything at face value and to use tools to help me, such as CASP’ (a critical appraisal tool)

One student summed up the influence on her of learning in a ‘flipped classroom’,

> ‘I now own my achievement’

Students also reported that the flexibility of the flipped classroom facilitated a more productive use their own study time:

> ‘I really benefitted from the online resources that I can access at home any time’

And as a result the majority of students described how they used their study time to extend their learning

> ‘I learned different things that I did not expect, like self-management, teamwork and how to spread study across my busy life’
>
> ‘I gave more of my own time to reading books and articles’

All students identified the importance of being part of a learning community and most perceived the online activities as contributing to this:

> ‘I felt vulnerable at first when I added postings to the online discussion, but then I felt supported by other students and now I enjoy using it’
>
> ‘being able to read peer responses helped my confidence and broadened my knowledge’
>
> ‘Online discussion was the most interesting part of the course’

However, some students expressed a sense of disappointment and surprise at the lack of traditional, face-to-face didactic teaching on the course:

> ‘I expected a more traditional approach to teaching and at times felt frustrated and lonely’
>
> ‘My expectations about learning at university had been totally different, it was a challenge – but exciting’

And all of the students defined the importance of the contribution from the course tutor and were very positive about the feedback and support provided as part of the online activities:

> ‘reading good feedback gave me a sense of achievement’
>
> ‘the tutor helped us to look outside of the box, and encouraged us to see what we could not see’
>
> I enjoyed completing the tasks and felt really proud, the feedback really helped me’

There was a strong sense from all students that learning from the course could be readily transferred not just to their academic programme but also to their work in health and social care:

> ‘I can apply all of my learning to other courses and now I feel more confident to critique the effectiveness of health care’

The student’ reflections documented a much more positive experience of learning than the group evaluation activity and suggested that they felt a strong sense of individual achievement by adopting an approach to learning promoted by the design of the ‘flipped classroom’. This resulted in more confidence through the acquisition of new skills and knowledge as they accessed teaching materials that could be readily integrated into other aspects of their lives. It would appear that they enjoyed the challenge of the cognitive strain imposed by the online materials and activities. Participation, both online and face-to-face by the academic was perceived to be a key source of guidance and motivation. One of the key motivations for adopting a ‘flipped classroom’ approach is to promote a change in study behaviour in students and the overall perception during the process of teaching the course was that students did engage very actively in the student forums and the online tasks. There was plenty of evidence of discussion between groups of students as they supported each other’s learning as well as questions relating to misinformation and confusion. Overall the qualitative statements suggested that most students did perceive a difference in the way that they approached their studies and felt that it had helped them to manage their time and extend the time given over to study, despite their family, work and social pressures.

## Discussion of results

As an approach flipping the classroom adopts a way of joining technology with teaching through the adoption of OERs that are permitted to be delivered online with the aim of changing the learning process by students largely through the absence of the academic. It is a system of teaching that has captured a place amongst prestigious academic institutions around the globe. However there is a need to monitor the impact that flipping the classroom has on students in relation to expectations and to the quality of the student experience. The findings of this evaluation are both disappointing and encouraging at the same time. Disappointingly, the students involved in the initiative expressed low levels of satisfaction

following engagement with a course that adopted flipping the classroom as an explicit approach to teaching, in that they felt that the quality of teaching in flipping is diminished in some way. For them, the physical presence of the teacher seemed to be essential for the notion of authentic teaching and learning which lies outside of the use of technology and is not reproducible in online environments. In other words the authentic experience of the classroom is the essence of teaching. Open education resources used in the context of this course provided materials for teaching in a way that is independent of the original authentic lecture. Teaching, in this context, reproduces the student experience in a way that is out of the control of the academic or the institution, but can be argued meets the student halfway. Encouragingly individual student reflections on their academic and personal development in the flipped classroom, along with participation data, provides evidence that students did take responsibility for their progress and skills development and demonstrated a very positive awareness that teaching and learning has to be 50/50 student /teacher effort and not necessarily 100% teacher. In sharp contrast however, as a group they wanted to claim control of their experience and were highly critical of an approach to teaching that appeared to deny them a traditional cultural experience that is synonymous with their perceptions of university education. This does not necessarily bring Barthes's theory into question but suggests that maybe the students had insufficient experience, knowledge and confidence in order to construct their own views and opinions.

This analysis also brings into question the usefulness of the institutional course monitoring form and suggests that evaluation as one idea of corporate practice, using one standard form becomes a very limited activity. It could be argued that it leads to reductionism and a perspective of practice that is related simply to student satisfaction, as the institutional form is not linked to specific course outcomes or changes to student behaviour. The study suggests that evaluation practice is best situated in the context of course delivery because, as suggested by Saunders, Bamber and Trowler (2011), the learning and teaching environment is too messy to be controlled in a pseudo-objective manner. Any comparison between this course and others becomes very restricted and the resulting data from the institutional form is not necessarily reflective of what really happens in the context of course delivery. However the reflective writing exercise, in this instance, gave a better view of how the individual student is able to make meaning of and shape their learning from the course materials. Evaluative practice benefited in this case study from a bottom-up approach that led to a reflexive consideration of the student experience. This study supports the argument that higher education institutions require new evaluation tools, that lead to the development of courses and teaching practice, rather than for the provision of data for regulation, comparison and management (Saunders, Trowler, & Bamber, 2011).

In conclusion this small study suggests that the death of the author is not always necessary. Students in this case study did want the presence of the author. The debate is not necessarily related to the death or life of the author, neither are necessarily correct and the answer lies somewhere in between. Any analysis of teaching and learning in the digital age must recognise its relationship with the traditional, as universities are embedded in tradition and offer both sacred and profane forms of experience for students (Bernstein, 2000). Technology has the potential to liberate teaching from tradition, in that materials reproduced for online delivery can also be designed and tested for quality and, one resource can be used and read many times, therefore it could easily be argued that it makes little sense to

continue with the traditional lecture. Clearly technology and the Internet have changed the reaction of students to university education, but this small study suggests that there is a need for a mix of both academic and emotional enjoyment as equal components of the student experience. This mix appears to be key to the future of technology-use in teaching. Flipping the classroom offers an approach that can bring technology into the traditional and make it part of it, however there is a need to acknowledge that for the students in this study the traditional classroom experience is desired uncritically, whilst the new approach to teaching is strongly criticised. The challenge therefore when considering whether to adopt the 'flipped classroom' approach is not to abandon the idea because of student expectations but to consider and debate how to bring these receptive and critical attitudes together.
The findings of the study are to be set in the context of a course that introduces students to study at level six in a university. Others have suggested that flipping the classroom may be received more positively by students who are more confident in their ability to study independently (Hamdan, McKnight, McKnight, & Arfstrom, 2013). Therefore it is intended to extend the initiative and to formally evaluate case studies that include students at different stages of their learning, in particular students who have more experience of university study than those included in this study.

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