

# **‘Flipping’ Academic Reading**

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## **Abstract**

‘Flipping’ is a relatively new learning strategy that reverses the taught and ‘homework’ activities of students. The aim of this research was to evaluate the effectiveness of ‘flipping’ with a particular emphasis on encouraging wider academic reading by students undertaking level 5 modules as part of PE and Sports Therapy undergraduate programmes. A mixed methods study was undertaken during semester two of the 2012 to 2013 academic year. The responses from a paper-based questionnaire to both cohorts informed the subsequent questions for individual course focus group interviews. These focus group interviews were then followed by semi-structured interviews of students from each cohort. The academics leading each of the modules were also interviewed. The fourteen initial themes that emerged from the qualitative analysis of the focus group data were conflated into three meta-themes: a) why do we do flipping, b) student engagement, and c) plans for the future.

The conclusions were that ‘flipping’ is an effective way to engage students in academic reading and begin to apply their understanding in the classroom. Overall, the main perceived benefits of flipping were the ability to engage in material anywhere-anytime and the increased interaction in face-to-face sessions.

## **Introduction**

Wikipedia founder, Jimmy Wales, believes that ‘the boring University lecture is going to be the first major casualty of the rise in online learning in higher education’ (BBC, 2013). The current UK economic climate means that Higher Education Institutions (HEIs) rely on increasing student numbers, resulting in larger class sizes and increasing student to staff ratios (Berrett, 2012). It has been suggested that it is, therefore, inconceivable that the traditional lecture model, where hundreds of students can be ‘taught’ in one session, is going

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<sup>1</sup> At the time the research was undertaken, Sally Smith was a member of Institute of Health & Society and her module was delivered in that Institute.

to go away (Berrett, 2012). Wider use of technology to support education, via blended and on-line learning programmes, continues to be a common theme across the world's Universities (Economist Intelligence Unit, 2008).

Although the emphasis in both PE and Sports Therapy is on the practical application of extensive underpinning knowledge/evidence-based practice, the two researching lecturers involved with delivery on these courses perceived that the notion of additional background reading to enhance the students' underpinning of knowledge was not an integral part of the student learning culture. The lecturers felt that this was a growing problem which resulted in weaker academic performances within a number of modules. Although these perceptions are based only on anecdotal evidence, it is noteworthy that both lecturers had independently investigated the learning approach known as 'flipping'.

### **What is flipping?**

'Flipping' is a relatively new learning strategy that reverses the taught and 'homework' activities of students. It has become a popular pedagogical approach in secondary and tertiary education (Frydenberg, 2012). Activities that traditionally occur face-to-face (such as lectures) are undertaken outside the lecture theatre, while those activities that normally take place as 'homework' or assignment work are given the primary focus during time spent face-to-face (Warter-perez and Dong, 2012; Boucher et al., 2013).

The work 'outside of the classroom' can consist of a variety of activities, including the use of podcasts and vodcasts of traditional lectures (Alvarez, 2011), responses to web-based questionnaires (Berrett, 2012), reading academic articles and other material, or 'the less active events' (Boucher et al., 2013:72). One key factor in 'flipping' is that material is available electronically using some form of 'mobile' device so that students can access lecture materials anytime and anywhere. This ensures that the face-to-face time can be utilised more effectively to enhance student understanding and help them to synthesise and transform the pre-lecture material.

The work 'inside' the classroom is where the lecturer acts as a facilitator in order to allow students to transform learning into meaning and eliminate misconceptions in theory, generally prior to summative assessment (Berrett, 2012). This is the time when students are helped to synthesise the pre-session material, put theory into practice, define and refine concepts, competence and critical thinking (Boucher et al., 2013). This time can be spent on problem solving and providing students with immediate feedback (Demetry, 2010). Boucher et al. (2013) acknowledge that an important aspect of 'flipping' is not merely the increased

use of technology, but rather the way in which technology is used to enhance and deliver the information.

Foreman (2003) states that the ideal learning environment provides immediate feedback, creates a constructive learning environment, motivates students and builds enduring conceptual structures. The power of 'flipping' is that it does not replace the face-to-face time but rather enhances it. The underlying principle of 'flipping' is that students cannot merely receive information or content within the standard lecture or act as passive learners but must actively engage with the content in order to gain the most benefit from their studies (Berrett, 2012) and as a result Bergmann and Sams (2012) claim that 'flipping' increases classroom interaction.

'Flipping' does not receive universal praise, either from academics or from students. Some students may not enjoy what they might see as additional work, even though they may acknowledge the greater pedagogical value of the added interaction and engagement. Some academics also express negative comments about this method of delivery such as increased planning time due to the nature of 'flipping' (Berrett, 2012). For example, they now need to become a facilitator in order to help students to transform what they have learnt outside the lecture theatre through engagement in activities during the face-to-face time, with the aim of encouraging the evaluation and synthesis of the pre-read material. Their role must necessarily change, to become one of facilitation rather than straight, didactic delivery. They must be able to answer student questions, address misconceptions and provide feedback immediately. This may require a change in attitude and approach for many 'traditional' academics. Academics also need to have a clear and focussed approach to using different technologies, as well as the knowledge and ability to use them. Some traditional academics may find the use of technology a complex and daunting prospect. The aim of this research was to evaluate the effectiveness of 'flipping' with a particular emphasis on encouraging wider academic reading by students undertaking level 5 modules on either a PE or a Sports Therapy undergraduate programme.

The PE module involved a set of academic reading or an activity in the form of directed study tasks given on a weekly basis. The readings and activities were then transformed in lectures using a variety of teaching and learning methods. These included an ethnodrama, knowledge café, a blog and a 'QuestionTime' scenario as well as traditional lectures. The use of a variety of learning and teaching methods on this module crosses over into key theories on how to promote effective learning. These include behaviourism, social constructivism and humanism (Kidd and Czerniaswski, 2010).

For the Sports Therapy module, the theoretical material was delivered using the virtual learning environment, Blackboard. A series of suggested YouTube video recordings to watch or articles to read were supplemented by self-assessed quizzes on each topic area. The in-class sessions were consistently used to demonstrate, practise and enhance the students' handling skills of specific injury assessment techniques. The face-to-face sessions also included a mix of case study/scenario based discussions, which allowed students to develop a deeper understanding of the evidence-base in order to apply this to practical situations.

## **Methods**

A mixed methods study was undertaken during semester 2 of the 2012 to 2013 academic year in order to ascertain the perceptions of students (n = 65, 50 PE and 15 Sports Therapy students) and lecturers on these programmes (n = 2) of the effectiveness of 'flipping'. An 8-question (see Table 1) questionnaire was administered by a non-teaching researcher in an attempt to negate any student-lecturer power relationships. Drawing on previous experience, a paper-based rather than an on-line questionnaire was administered in order to maximise the number of participants. Each question took the form of a statement, (see Table 1). A five-level Likert item was used to measure the participants' responses, which ranged from 'strongly agree' to 'strongly disagree', the central neutral point being 'neither agree or disagree'. The same non-teaching researcher also conducted all the interviews and focus group interviews. This assured anonymity of the participation of any student as well as identification of the views of any specific participant and aimed to increase analytical consistency (Ansary et al., 2004:132).

The data from the questionnaires were entered manually into SurveyMonkey<sup>2</sup> by the non-teaching researcher. This online tool was then used to collate and analyse the data in order to develop the questions for the subsequent focus group interviews with students and the individual interviews with staff.

The student questions derived from the questionnaire responses focused on a variety of themes including; the motivation for the pre-reading, experience of the Blackboard activities, preparation for assessments and the reasons for the most useful activities and tasks inside and outside of the classroom. The research team anticipated that, as Hennink et al. (2011:136) maintain, a 'well conducted focus group discussion can uncover unique

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<sup>2</sup> See: <http://www.surveymonkey.com>

perspectives in the study issues'. However, the focus group approach was chosen not only in order to investigate the issues raised in the questionnaires in more depth, but also to allow the participants to hear and respond to the views of others, and thereby (it was hoped), build a richer picture of the phenomenon under investigation. As Ansary et al. (2004:315) note: 'focus groups provide a way to evaluate the important social dynamics and subjective responses to existing programs'.

All students on the two courses were invited to participate in the focus group interviews. Six students in total volunteered, thus providing a self-selecting sample, which as Olsen (2008) points out, will often lead to biased data. However, as this sample had all experienced the 'flipping' approach, and bearing in mind the ethical issue of the possible threat to student anonymity posed by the selection of a stratified representative sample, the research team felt that the resulting data would nevertheless be potentially useful.

Although the two groups of students (PE and Sports Therapy) had had distinct and different experiences of 'flipping', the questions asked of them were the same, apart from question 8 which was specific to the each module. A particular feature of this study was the research team's decision to share the outcomes of the questionnaire in the form of a hand-out for each focus group participant, which contained graphs and statistical data. The aim was to provide background information and an illustration of the data relevant to the question being asked.

The questions asked in the individual interviews with the two lecturers who had adopted the flipping approach related to the motivations to undertake 'flipping', their experience and future plans.

All the interviews and focus groups were recorded and the recordings uploaded to the collaborative online Audio Transcription Tool (AAT)<sup>3</sup>, which was utilised to aid thematic analysis and draw out the key themes. Inter-coder agreement between the whole research team was a key part of the process and was leveraged to increase the validity of the findings (Silverman, 2010).

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<sup>3</sup> See: <http://www.nbpublications.co.uk/aat-manual.pdf>

## Results and Discussion

### Questionnaire

Table 1 presents the mode responses from the Likert items in the questionnaire for each of the two student groups (PE and Sports Therapy) followed by the percentage of students in parentheses who either 'agreed' or 'strongly agreed':

**Table 1: Questionnaire results – mode responses**

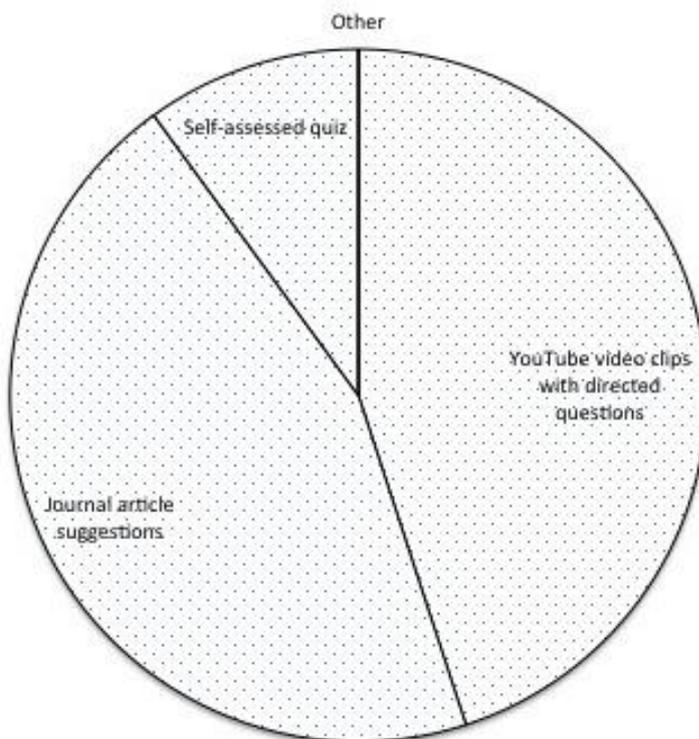
Statement	Sports Therapy	PE
1. I think I did more background reading in this module compared to other modules.	A (60%)	SA (78%)
2. I think it was useful to have pre-reading to do before the teaching session.	A (86.7%)	A (76%)
3. I did lots of additional background reading because of the pre-reading material.	N (40%)	N (36%)
4. I think that the activities on Blackboard supported my engagement with the reading.	A (80%)	A (78%)
5. I think that I am able to do a literature search better than I was before this module.	A (80%)	A (52%)
6. I feel that I have a deeper understanding of the topics covered in class because of the pre-reading.	A (86.7%)	A (85.7%)
7. I think that the reading on the module helped prepare me for my assessments.	A (80%)	A (93.9%)

(Key: SA = strongly agree, A = agree, N = neither agree nor disagree, D = disagree, SD = strongly disagree)

It can be seen from table 1 that students had a positive response to all the questions other than question 3, relating to pre-reading having had an effect on their motivation to undertake additional reading. It is interesting to note that although the students felt that they did more reading in this module compared to others, they did not feel that the pre-reading material was the cause of this. Although the reasons for this were not explored within the focus group, it would be useful to investigate whether this meant that the students did even less reading in other modules and/or whether they would have done less reading in these modules without this new approach and encouragement.

Question 8 was different for each of the two cohorts because of the differences in delivery and transformation. For Sports Therapy students the question was 'Which method of pre-reading did you find the most useful?' (see Figure 1):

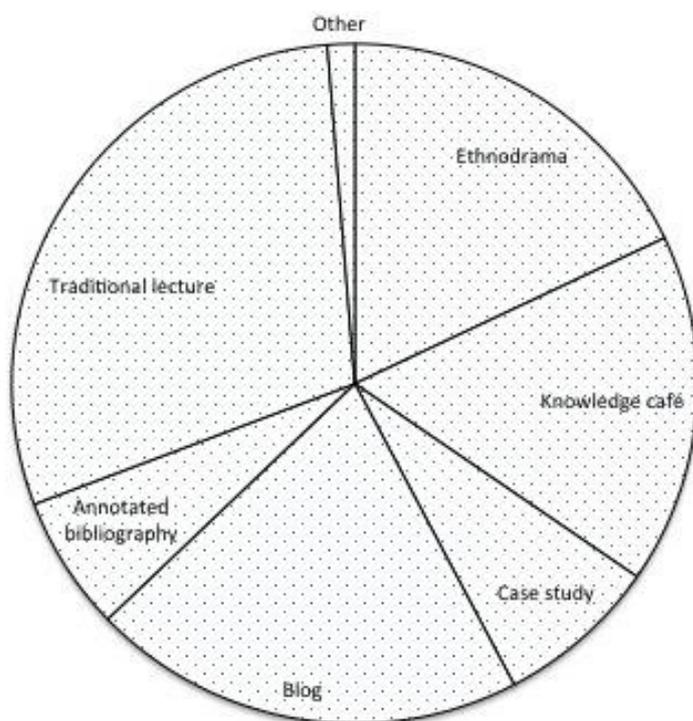
**Figure 1: Questionnaire results for question 8 (Sports Therapy students)**



The most popular methods of pre-session material for these students were a) YouTube videos, and b) the journal article suggestions. It could be suggested that these methods are a) passive and b) traditional methods of asking students to do background reading. The least popular was the self-assessed quiz material. It would be interesting to investigate whether these students felt that this was 'yet more assessment' rather than helping them to transform their understanding from the other two methods, as was intended.

Question 8 for the PE students was 'Which method of transforming your understanding was the most popular?' (see Figure 2):

**Figure 2: Questionnaire results for question 8 (PE students)**



The most popular was the traditional lecture, followed closely by the ethnodrama, knowledge café and the blog. This echoes findings made by Berrett (2012), who noted that when students had to work hard in lectures they gave negative evaluations. One reason for this may be that many students in this particular cohort of our study felt more comfortable with the relatively passive method of learning. However, it should be noted that students also appeared to enjoy the more kinaesthetic methods of the knowledge café, ethno-drama (PE), blog and practical lectures (ST).

Both lecturers reinforced the view that flipping is about more than setting reading before a lecture. They maintained that it needed to embrace the idea of the taught session *transforming* what had been engaged with beforehand. The taught session should be mainly concerned with the application of the knowledge gained, not simply be focussed on discussing it. It was felt that students may require a brief induction into the nature of ‘flipping’ so that they are more fully aware of the proposed pedagogical benefits. It is also likely that there will be some students within any cohort who will always prefer a passive role rather than the added engagement and interaction, which is required to gain full benefit from ‘flipping’.

Interaction is a key factor noted by Bergman and Sams (2012) to aid the transformation of learning and the change of role for educators when ‘flipping’ is embraced. The focus group data demonstrated that students felt engaging in the interactive content would impact on achievement and was therefore their main motivation for engagement. However, the already heavy emphasis on reading within both modules meant that the students rarely tried to find *additional* academic texts in order to enhance their understanding.

### Focus Groups, Student and Staff Interviews

Fourteen key themes emerged from the thematic analysis of the focus groups (see Table 2). These fourteen initial themes were conflated into three meta-themes. Two of the initial themes spanned two of the meta-themes (shaded grey in the following table), whereas the rest were allocated to single meta themes:

**Table 2 – the allocation of themes to meta themes**

1. Why do we do flipping	2. Student engagement	3. Plans for the future
Reasons for the adoption of flipping	The impact of flipping	
	That the pre-reading did not encourage additional reading	
	Motivation to undertake the pre-reading	Future planning for flipping
	The link of the flipping approach to successful assessment outcomes	Where flipping did not work
	Lecture clarification (being able to ask questions about the pre-reading during the taught session)	Improvements that could be made
	How Blackboard helped the participants engage with the pre-reading	
	Positive comments about the use of flipping	
	Links to class practical sessions	
	Comparisons made with other ‘lectures’	
	The link of flipping to ensuring understanding	

In general, students were enthusiastic about flipping. Their main motivation to engage with any pre-session tasks appeared to relate to their feeling that they would struggle with the lecture without having done the preparation and would get behind. Indeed, one student commented that they felt the lecture was almost “a waste of time” without having done the required work. Some students talked of increased confidence in the taught session because of flipping and they felt able to enter into discussions and to ask questions in order to clarify issues. The Sports Therapy students, in particular, liked the obvious link between the pre-reading and the practical elements of the face-to-face sessions.

Students also felt this new approach supported their assessments, although (as was confirmed by the questionnaire responses) they did not necessarily feel it encouraged them to go away and read more widely than the required pre-session material. The main reason put forward for this lack of additional reading was the paucity of time.

Both students and staff commented positively on the role that technology (specifically Blackboard) played in supporting learning. All the resources for the module were in one place, which they could access at any time and from anywhere. Students (Sports Therapy) found this a useful revision tool as well as a way of testing their knowledge. Some students (PE) liked the blog in particular, as they could see other student comments, which they maintained helped with their own understanding of the material.

It was recognised that there is a need for improved support in terms of software/hardware infrastructure, as well as technical support for both staff and students who are not completely comfortable engaging with the VLE. Both lecturers also agreed that there was a greater emphasis on preparation time by academic staff when ‘flipping’ was adopted which is supported by Berrett (2012). Even in light of the changing backdrop in HE, which is forcing higher student:staff ratios and the benefits of the use of a VLE, lack of available time and/or technical ability may negatively influence some staff when considering this different pedagogical approach to enhancing student learning.

The lecturers were able to suggest a range of improvements. For example, the Blackboard-based self-assessment quizzes needed to have the opportunity for feedback built into them, particularly where a student’s responses were incorrect. Although this requires additional preparation time by the academic, it will ultimately allow students to self-assess at any time during the module, without the requirement for as much supplementary tutorial support. There was a need to incorporate even more theory within the Sports Therapy practical sessions, to bring the evidence base into the session more and make the need for

understanding and transforming the evidence even more explicit. An increase in the use of increasingly complex case studies was suggested as a good way forward.

## Conclusions

'Flipping' is an effective way to engage students in academic reading and begin to apply their understanding in the classroom. However, it emerged that not all students enjoy working harder in class. Lecturers acknowledged that they needed to spend time planning pre-lecture tasks and embracing the technology that will enable them to 'flip'. Lecturers also need to embrace a facilitator role, rather than a more traditional 'sage on the stage' attitude.

Overall the main benefits of 'flipping' were the ability of students to engage in material anywhere-anytime and the increased interaction in face-to-face sessions, which appears to have enhanced the student learning. Williams et al. (2012) found that student achievement was greater if they engaged in both online learning and attended face-to-face sessions. The 'flipping' approach could be utilised within any discipline, but it may be that the 'flipping' approach is more suited to some specialist areas. We would suggest that the benefits of 'flipping' will rely on the imagination of the academic to find appropriate pre-reading and in-class activities.

Both lecturers felt that the project had been worthwhile in evaluating the use of 'flipping' within their respective courses. For the future, they confirmed that they intended to continue with 'flipping' and would like to see it become part of other modules. Additional tools that they felt would be helpful in the future were podcasts, vodcasts or narrated PowerPoint presentations. The most central aspect that emerged was that both lecturers felt 'flipping' motivated student learning. Perhaps most importantly, whilst it was impossible to quantify, both felt that flipping had had a positive impact upon student achievement.

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## Biographies

**Helen Corke** is a Senior Lecturer in Physical Education at the University of Worcester. Before joining the University in 2005, she had taught in Secondary Schools for ten years and was head of a PE department for five years. Helen led the P.G.C.E. PE Teacher Training programme for three years before she moved into teaching on the undergraduate modular scheme. Helen's interests include blended learning, podcasts, narrated PowerPoints, Prezi and kinaesthetic learning approaches.

**Sally Smith** spent many years as a practising sports therapist, working with a variety of sports teams and in sports injury clinics around Sussex. Sally gained a first class honours from University of North London and then an MSc in Sports Biomechanics from University of Chichester. Sally took up an academic post at London Metropolitan University in 2001 to teach on the Sports Therapy programme. Moving to University of Worcester in 2007, Sally spent 6 years as a Course Leader but now focusses on teaching sports therapy. Sally is just starting a PhD and her research focus is on strategies for developing handling skills in sports therapy students.

**Nick Breeze** is a Learning and Teaching Research Projects Officer in the Institute of Sports and Exercise Science at the University of Worcester, where he supports academic

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