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Daniel King

Dublin Institute of Technology, Daniel.king@dit.ie

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# MANAGEMENT ACCOUNTING AND THE FLIPPED CLASSROOM

Management Accounting – Combining Blended Learning and Mobile Apps to Enhance the  
Flipped Classroom Concept

Daniel King

Dublin Institute of Technology

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### Abstract

The primary purpose of this paper is to demonstrate how Blended Learning, Mobile Apps and other technological innovations can be combined with the Flipped Classroom concept to enhance the delivery of a Management Accounting module.

In this study there were two separate but linked objectives in introducing the Flipped Classroom, Blended Learning and Mobile Apps. Firstly, to explore if the students would engage with the Flipped Classroom concept and secondly to explore if the students would engage with the Blended Learning elements (including mobile Apps) which were designed to support the Flipped Classroom.

Currently, there is no single model for the Flipped Classroom. In this particular study, an approach called the Active Learning Exercise was introduced. In the Active Learning Exercise approach students receive a Management Accounting case study, on which they work in small groups, sharing ideas and helping each other.

This Flipped Classroom/Active Learning Exercise is supported by on-line access to notes and video tutorials via Blackboard. In this study Mobile Apps were introduced to the students and incorporated into the delivery of the module.

Finally, feedback from the students is presented and future opportunities and directions are discussed.

*Keywords:* blended learning, mobile apps, flipped classroom, management accounting, active learning, student engagement

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**Introduction**

The primary purpose of this paper is to demonstrate how Blended Learning, Mobile Apps and other technological innovations can be combined with the Flipped Classroom concept to enhance the delivery of a Management Accounting module. The Flipped Classroom concept and Blended Learning (including mobile Apps) were introduced to 3<sup>rd</sup> year Event Management students in the School of Hospitality Management and Tourism at the Dublin Institute of Technology. The students are studying a four-year honours degree programme that leads to the award of BSc Event Management.

The Management Accounting module, Management Accounting: Planning & Control (TFAC3004), is a core/compulsory module on the degree programme. It is important to note that the Event Management degree programme is a management degree and not an accounting/finance degree. Like many management degree programmes students study a range of key modules such as management, economics, statistics and accounting. Therefore, the students enrolled on this module are “non-accounting” students. They are taking the management accounting module because it is mandatory.

Part of the motivation for introducing the Flipped Classroom concept and Blended Learning into the module was to attempt to engage more with the students, to illustrate the usefulness of management accounting in real business situations and to create more interest in the study of management accounting. Currently in the School of Hospitality Management & Tourism the management accounting module (TFAC3004) is delivered across six different programmes over the academic year either in the first or second semester. There is a common exam at the end of each semester which accounts for 60% of the marks for the module. This restricts the amount of change that can be introduced into the module at any one time.

This paper aimed to address two key questions as follows:

1. Would the students engage with the Flipped Classroom concept?
2. Would the students engage with the Blended Learning elements designed to support the Flipped Classroom?

### **Learning Styles**

Increasing student diversity and widening participation rates means that in any class group there is a range of different abilities. Different students have different strengths and preferences in the ways that they take in and process information, which is to say, they have different learning styles. Some students prefer concrete information while others are more comfortable with abstractions and in other situations some students prefer visual presentations while others get more from verbal explanations.

Felder and Spurlin (2005) state that when learning styles of most students in a class and the teaching style of their lecturer are seriously out of line, the students are likely to become uncomfortable, bored and inattentive, do poorly in tests and get discouraged about the course.

The success of the learning style approach depends on students understanding how they learn best and then take responsibility for driving their own learning. This is referred to as Personalised Learning. Central to the success of Personalised Learning is the element of choice. The more choice you can give your students within the different aspects of a module, the more opportunities students have for personalising their own learning.

Studies have shown that greater learning may occur when teaching styles match learning styles rather than when they are mismatched (Felder & Spurlin, 2005). Also, according to Felder and Spurlin (2005) the optimal teaching style is a balanced one in which all students are sometimes taught in a manner that matches their learning style preference, so that they are not too uncomfortable to learn effectively, and sometimes in the opposite

manner, so that they are forced to stretch and grow in directions they might be inclined to avoid if given the option.

There are a number of different ways of categorising learning styles such as the Felder-Silverman learning style model, Kolb's Model and Flemming's VARK model. For the purpose of categorising learning styles in this study, Flemming's VARK model was selected. It was selected because it is conceptually easy to understand, because it is used frequently by DIT's Learning, Teaching and Technology Centre and there is a free online questionnaire which students can use to assess their own learning styles.

Flemming's VARK model categorises 4 main types of learners, Visual, Auditory, Read/writing and Kinesthetic. VARK is an acronym for the four types of learners. When the results of a VARK questionnaire are being analysed it is important to note that the results indicate a rule of thumb and should not be rigidly applied. The VARK questionnaire is not intended to "box" respondents but to initiate discussion about learning preferences. The most consistent finding from VARK questionnaire results is that classrooms are very diverse. Students who completed the VARK questionnaire reported a variety of learning styles. However, a significant number reported a multimodal learning preference. It is important to keep in mind that some people with a multimodal preference need to have the same material presented in several of their modes in order to really learn it, while others can effectively learn using any single one of their multiple preferences.

Flemming (2001) presented research that indicated higher student performance in courses where lecturers match learning activities with students' learning styles. This conclusion is supported by Hawke and Shah (2007) when they state that using learning style instruments to inform the choice of learning activities and approaches do enhance the effectiveness and quality of learning for students.

Learning style theories have been criticised by many scholars and researchers (Curry, 1990). In 2005 the Demos report (Beere, Swindells & Wise 2005,) it was reported that the evidence for learning styles was highly variable and that practitioners were not always frank about the evidence for their work.

### **Teaching and Learning**

In the School of Hospitality Management & Tourism the accounting modules (including TFAC3004) are delivered along traditional lines. The module is delivered over a 12-week semester. There are 3 contact hours per week. Usually lecturers follow the course outline moving step by step through the module. Topics are discussed and explained, questions and solutions are worked on in class. The management accounting module is accompanied by an essential textbook, written specifically for hospitality, tourism, leisure and event students. There is a mid-semester assessment (usually around week 6) which accounts for 40% of the marks for the module. An end of semester exam accounts for 60% of the marks for the module.

The Flipped Classroom concept of teaching was introduced to 3<sup>rd</sup> year Event Management students, studying the management accounting module, in the second semester of the 2015-16 academic year. This was a relatively small group, consisting of 40 students.

While in the past the Flipped Classroom might have involved something as simple as reading a chapter in a textbook in advance, recent developments in learning technology have opened up an exciting range of opportunities for inverting the classroom (Lancaster & Read, 2013). The term Flipped Teaching should not be thought of as a set of practices, but more as a philosophy that places the student and not the lecturer at the centre of the learning process. There is no one way to instigate a “flipped” teaching environment, but all the variations aim to encourage preparation in advance for a much richer learning experience in a face-to-face session.

In this study the Flipped Classroom concept was based on an Active Learning Exercise. The Active Learning Exercise was developed by the author to mimic a real-life business situation. The Active Learning Exercise commenced in week three of the semester. Initially students were given a lecture about the general concept of the Active Learning Exercise. The students then divided into small groups. Each group received a background scenario (which was the same for all groups) and financial information. The financial information was different for each group.

From week four to week nine, one hour of class time per week was allocated to the Active Learning Exercise. The students worked on the exercise in their groups. Students were encouraged to interact with other groups. This created a peer to peer teaching environment. Students could share ideas and help each other, but they could not copy as each group had a unique set of financial information. Normal lectures continue for the other 2 hours per week. From week four to week nine, topics covered in the lectures were required by students to complete the Active Learning Exercise. Students also required additional information to complete the Exercise. This information was provided as requested as the students worked their way through the Exercise. The completed Exercise was submitted as a PDF file via Blackboard. This was an essential requirement of the Exercise.

The Active Learning Exercise resulted in students taking responsibility for their own learning. During the Active Learning Exercise the lecture hour became more student centred rather than teacher focussed, with the lecturer taking on the role of facilitator rather than teacher.



### **Blended Learning**

Throughout the Active Learning Exercise, support was provided via a virtual learning environment (VLE) or learning management system (LMS). In the DIT, Blackboard is used to create a VLE/LMS. Using this system allows students to engage with learning material and to construct understanding at their own pace.

Blended learning is a term used to describe a teaching practice that combines face-to-face teaching with online learning. Blended learning is implemented in a variety of ways, ranging from models in which the curriculum is fully online with face-to-face interaction, to models in which face-to-face classroom instruction is integrated with online components. For the purposes of this paper, blended learning is broadly defined as an instructional practice that combines face-to-face teaching with online learning.

According to Kaur (2013) blended learning combines online delivery with classroom interaction in such a way as to personalise learning and differentiate instruction from student to student across a diverse group of learners. This would support the argument that using a blended learning approach to assist in the design and delivery of learning material can assist lecturers cater for the diversity in learners' needs. The blended learning approach can be reinforced in the classroom by creating opportunities for peer to peer teaching and/or group work activities. This allows room for students to take control of their own learning and for the lecturer to take a more facilitative role (O'Connor, 2015).

At present, virtual learning environments (VLE) such as Blackboard are used by students for a variety of purposes. In DIT Blackboard is used to communicate with students, upload notes and copies of lecture slides, to submit assignments and a range of other activities. For the Active Learning Exercise an additional range of resources, specifically tailored to the exercise, were made available to assist the students. Some of the resources

were created specifically for the exercise while others were existing resources that were utilised to support students' learning.

One of the key resources was the development of a range of video tutorials. The video tutorials were created by the author using Screencast-O-Matic software. The video tutorials specifically targeted key areas of the Active Learning Exercise and tutorials were made available to the students on Blackboard. Supporting these tutorials was a series of online self-test quizzes. These self-test quizzes allowed students to test their own knowledge and progress.

In the course of the Active Learning Exercise use was made of the Socrative App. Socrative is a virtual student response system, or virtual 'clicker', that helps lecturers engage with students and assess the level of their understanding. The Socrative App was used to determine students' understanding of the Active Learning Exercise material as the semester progressed.

From a teacher perspective, the use of Socrative created a real buzz and a purposeful atmosphere, while also highlighting which aspects of different topics were proving troublesome to the students. Lancaster and Read (2013)

Additional apps were introduced to the students to assist them complete the Active Learning Exercise. These apps included two mind-mapping apps to help with planning and organising the Active Learning Exercise (iMindMap and Mind Miester), two digital notebook Apps that can be used to gather, organise and share notes and group work (Onenote and Evernote) and two apps that can be used to turn a mobile phone into a scanner (CamScanner and Office Lens). Some students completed the Active Learning Exercise by hand. The CamScanner and Office Lens Apps allowed the students to convert their work into PDF files for submission.

### Student Feedback - Active Learning Exercise (Flipped Classroom concept)

At the end of the Active Learning Exercise (Flipped Classroom concept) students were asked for feedback. A short questionnaire was distributed in class. There were 29 students in class on the day the questionnaire was distributed. Students were asked to rate the Active Learning exercise from “Disliked it” to “Loved it” on a 5-point scale. They were also asked for comments in their own words.

Table 1. *Summary of the feedback*

1	2	3	4	5	Total
Really disliked it. Would rather go back to the traditional approach	Did not really like it.	Neither liked nor disliked it	Liked it	Loved it. Felt I gained a lot from it.	
0	3	3	15	8	29 student
0%	10%	10%	52%	28%	100%

A selection of students’ comments:

“I prefer this to a class test... a class test is just a memory game.”

“I liked working together... peers could explain where we were going wrong.”

“I loved working on it in class.”

“Allowed students to work together”

“The continuous guidance helped me understand it better as opposed to just learning off headings for a class exam.”

### **Student Feedback – Blended Learning**

Of the students who answered the questionnaire 100% found the Video Tutorials beneficial. Students also provided the following comments regarding the Video Tutorials:

“I can start and stop the videos to go at my own pace.”

“Such a handy resource to have. Allows students to dictate the pace of their learning.”

“The videos were so helpful, I got loads of notes and found being able to pause and repeat the videos so handy.”

“They are super helpful. Sometimes just reading over examples can be mind-numbing or you may not have written something down fully or know why you are doing something so it is really helpful to be able to go to the tutorial video between classes.”

“Particularly helpful for students who do not pick up maths as quickly as others.”

“I found them really helpful. Thanks for taking the time to make them.”

The Socrative App was also positively received with 75% of the students responding favourably to its use in class. However, use of the other Apps was disappointing. Only 25% of the students stated that they actually used any of the other Apps.

The online quizzes were appreciated by the students. The majority of the students enjoyed the quizzes and found it useful to be able to test their own knowledge and progress without having to complete a graded assessment.

### **Conclusion**

Two questions were posed at the beginning of this paper, namely

1. Would the students engage with the Flipped Classroom concept?
2. Would the students engage with the Blended Learning elements designed to support the Flipped Classroom?

Based on the student feedback the Active Learning exercise was very successful, with 80% of the students who replied saying that they “Liked” or “Loved” the exercise. All the additional comments received from the students were positive. It would seem reasonable to conclude that the students participated and engaged with the Active Learning Exercise (the Flipped Classroom concept).

The Blended Learning support also seemed to be very popular. A 100% positive response regarding the videos was very encouraging. There were also favourable comments regarding the online quizzes. Combining this favourable response with the positive comments would lead to the conclusion that students engaged with the online support for the Active Learning exercise. The Socrative App was favourably received but little use was made of the other Apps. The author believes that the Apps have the potential to be of great benefit to students both for their academic studies and their professional careers.

It is intended to run the exercise again in the second semester of the 2016-17 academic year. Specifically, it is hoped to achieve the following:

1. Develop more video tutorials to support the Active Learning Exercise.
2. Continue to introduce Apps to the students and to align the use of the Apps more closely with the assessment to encourage use of the Apps.
3. Take a scientific approach to measuring student engagement using a survey that is based on a US National Survey of Student engagement (Fallon et al., 2013).

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