

Would incorporating blended learning in postgraduate accounting module impact on students` performance

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Abstract

The fast-growing development in information technology as well as rising students` expectation of more personalities and flexible learning approach forces Higher Education institutions to incorporate new ways of delivery. This can be difficult with more technical subjects such as accounting, where lecturers` expertise and guidance play significant role in students` success. The aim of this paper is to investigate if embedding some of the blended learning tools in post-graduate accounting module for non-specialists would impact on students` performance. Two models have been created to examine relation between specific blended learning tools and performance in specific assignments as well as the final module scores.

The preliminary results have revealed that student engagement with Moodle activates and time spent in MyAccountingLab have a positive impact on the students` overall performance. The time spend in practicing the pre-tests does not impact on students` quizzes results, however there is a direct correlation between score achieved in the pre-tests and final results in MyAccountingLab. In addition, there is no correlation between age or sex of students and neither final quizzes scores nor the overall module performance.

KEYWORDS: Blended Learning, Accounting Modules, Student Performance

1. Introduction

The fast growing development in information technology, expectation of true digital students of Generation Y and Z requires from lecturer not only to have knowledge of their own discipline but to large extend find the way to better engage students with modules, inspire and motivate, and assist them with more effective and personalised learning.

Nowadays technology provides University with opportunities to create new learning experiences, that were not possible few years ago. Internet-based technologies are rapidly gaining place in academia as an enhancement to traditional classroom education.

There is an increasing expectation that Universities will integrate the use of IT to innovate and enhance student learning. Implementation of new technologies, use of social media and internet to improve learning quality has been emphasised by wider academic and non-academic community (JISC, 2018). Technology provide the opportunity to design wide variety of new activities that can increase student's engagement and improve their learning.

The blended learning approach has been used as an alternative way of learning for traditional tertiary modules (Tinker, 2002). It has been increasingly adopted in course delivery and most university modules have some online components. There is quite a wide range of tools and approaches that can be used within blended learning. However, it became true art to create a compact, efficient and well-designed module with blended learning approach. Incorporating some blended learning tools allows not only for more personalised and efficient learning but also provide students with opportunity to develop some of the skills necessary for the future job market (Aluja-Banet et al., 2017, Kasraie and Alahmed, 2014). In addition, there is also a growing pressure to incorporate technological capabilities within accounting modules (Behn, 2012, AICPA 2017). The change of pedagogy, bringing in the new tools requires financial investment form Higher Education Institutions. For this financial contribution to be justified the evidence that those approaches will bring benefits to students and also enhance their performance must be investigated.

Thus, the main purpose of this study is to contribute to the current stream of online learning literature by examining if and to what extend various online tool impact on student performance in accounting modules. The paper consists of four sections. Firstly, the blended learning is explained, then the pedagogy behind new module design is explained. This is followed by presentation of the applied research mode and data collection process. And finally, findings are presented.

2. Reason of changing MBA module delivery approach

For many years the MBA module had been delivered in fully traditional and conventional way of two-hour lecture and two hours tutorial. The lectures focused on knowledge-based learning objectives, where relevant theories have been presents. Tutorials focused on skills development and application of the theories has been discuss. However, over the last 5 years the shift in participants of the programme has observed. The number of students with no prior business studies background had increased and students on regular basis struggled with understating the application of discuss topics. This required that more time needed to be allocated on practicing examples and discussing various scenarios and implication of specific decisions.

In addition, in 2018, the teaching setting has changed. The duration of teaching has been shortened from 4 hours per week to 3 hours. The lecture and tutorials setting has been replaced by 3 hours workshops. The module leader was exploring various pedagogical approach that would best suit this new scenario. The obvious choice was to look at some form of blended learning. Adopting a mixture of online homework, flipped classroom and Learning Management Systems (LMS) that would host revision materials looked like a good way of maximising the teaching allocated time.

3. Why Blended learning?

It must be noted that there is a lot of inconsistencies in using the term “*blended learning*”. The blended learning is used interchangeably with online learning, hybrid learning and e-learning. However, it is important to distinguish between blended learning, e-learning, technology enhanced classroom experience, and a fully online learning as pedagogy between those various approaches differs. Blended learning usually combines traditional face-to-face classroom activities that is accompanied by some online instruction and activities typically using an LMS.

Bonk and Graham (2005) stress that blended design can appear in three ways. Firstly, as an “enable blend” that focuses on accessibility and convenience of materials and delivery. Secondly it can be in form of “enhance blend”, which requires some changes of pedagogical approach, but there are no essential changes to the way teaching is delivered. And finally, the “transform blend”. This approach requires fundamental changes of the pedagogy and including students as active participants of the design and delivery process.

Some researchers prefer to take more narrow approach, where blended learning comprise of integrating classroom teaching with some aspects of online experience (Garrison and Kanuka, 2004, McGee and Reis, 2012). Despite variations in approaches, the most important aspect of successful blended learning implementation is to design efficient pedagogical strategy that allows smooth interchanges between classroom activities and online learning experiences.

There is a great number of researches that emphasise that there are is a great number of benefits a blended learning approach can offer (Dumford and Miller, 2018, Okaza, 2015; Grabinski et al., 2015, Pellas and Kazandis, 2015, Paechter and Maier, 2010, Garrison and Kanuka, 2004). Osguthorpe and Graham (2003) stress that blended learning among many advantages provides pedagogical richness, easy access to knowledge, personal agency (students take responsibility for the speed of their learning and progress) and cost effectiveness. In addition, within some blended learning approaches, knowledge is created through dynamic interactions and supported by using relevant technology, which have a positive effect on student success rate (Arquero-Montaña, Jiménez-Cardoso, and Joyce, 2004; Dziuban, Hartman, and Moskal, 2004; López-Pérez et al., 2011).

One of the major advantages of blended learning is that it offers the potential for institutions to address some of the difficulties posed by delivering courses to large and very diverse student cohorts (Dziuban, Hartman, and Moskal, 2004; Sharpe, et al, 2006; Vaughan, 2007). The online activities allow students to work through the content at their own pace and in their preferred time. It is possible to scaffold the content that permits students with different level of knowledge to engage with suitable level of materials and progress at the suitable pace. It provides the opportunity to create activities that prepares students for the valuable face-to-face in class engagement. In addition, it allows students to take a more active role in the teaching–learning process and, also engage them in participating in different activities throughout the module.

The online activities that can be embedded within blended learning can consist of:

- Learning Management Systems (LMS) such Blackboard/WebCT or Moodle,
- online homework and grading systems such as Connect (McGraw-Hill), CengageNow, WileyPlus Pearson Education’s MyLab,
- Audience response systems i.e., “clickers” mentimeter, sli.do, VoxVote, zeetings
- Tele-conferencing - Skype, adobe connect, zoom, webex
- live chats, instant messaging, social networking, blog and forums.

The increase of accessibility of computers, laptops and mobile devices leads to growing numbers of Higher Education that adopt online homework management systems. The variety of features available via online homework platform allows to address needs of diversified population of students with different learning styles and needs.

On the other hand, the LMS helps managing the online context as it allows to post reading materials, videos, wikis, forums to enhance self-regulation and to increase student-teacher interaction outside the classroom. Live webinars offer students with asynchronous content to explore in their own time and at their own pace, that can be followed by in-class activities such as case studies, discussion or debate. The good combination of technological facilitated learning with in-class activities helps students gain better understanding of the subject matter, and at the same time helps develop their cognitive and social skills.

The blended learning design should not replicate the content of lectures and seminars. Its adoption should be carefully thought and should be in line with digital strategies and relevant contextual factors (McKnight et al., 2016). Efficient blended learning system should comprise a mixture of the most desirable elements of traditional face to face and online learning. Such approach allows to provide efficient ways to support students in reaching their learning objectives and at the same time offering the best studying experiences (Bonk and Graham, 2006) If designed properly it can improve students` performance (King and Mo, 2013, Arasasingham, Martorell, and McIntire, 2011, Gaffney, et al., 2010; Dillan-Eggars et al., 2008, Smolira 2008).

Number of studies confirms that the online homework/practice exercise can benefit students as they are able to receive immediate feedback, which than can increase student performance (Kulik and Kulik, 1986) and is “positively correlated with course grade” (Parker and Loudon, 2013). This is in line with King and Jennings (2004) and Biktimirov and Klassen (2008), who also found a positive relation between some of online tools such as online homework, online simulation and students` results.

Furthermore, number of researches shows that using IT tool in accounting module deepens student`s knowledge, improve students` performance and retention (Morris et al., 2015, Tan and Ferreira 2012, Lushe et al., 2012, Sargent, et al., 2011, López-Pérez, Pérez-López, and Rodríguez-Ariza, 2011). Gaffney, Ryan, and Wurst (2010) found that students using online homework in introductory financial accounting module outperformed the students that were using traditional approach.

One of the type of blended learning method is Flipped Classroom. The Flipped Classroom pedagogical approach is based on lecture predetermining digital resources with

students through a platform outside the classroom, and the related content is taught asynchronously outside platform (Bergmann, Sams, 2012). The flipped classroom encompasses two types of activities: direct computer-based individual learning outside the classroom that include required video lectures materials, and in-class interactive group learning activities (Bishop and Verleger, 2013). So, during formal class time students can undertake collaborative activities relevant to the materials (Butt,2014) that allow to develop higher thinking under lecturer guidance and with relevant support from peers` (Hung, 2015). The video technology is used to prepare pre-class materials as in class engagement focus on peer learning (Abeysekera and Dawson, 2015, DeLozier, Rhodes, 2017). It is expected that in the classroom students interact with the lecturer and their peers, and apply and practice the knowledge gain prior to the on campus sessions.

As stressed by Bergmann, Sams (2012) the main advantages of the flipped classroom is that it engages a diverse group of learners. The module leader act as a facilitator of students learning. The knowledge obtain trough completing pre-class activities allows to solve a range of in-class tasks (Tune et al., 2013). The main aim of the flipped classroom is to promote an active learning environment, where students are encouraged to participate in the learning process during class sessions, while ensuring content coverage. It has been confirmed that this approach has positive impact on students` performance (Chun and Heo, 2018; El-Banna et al., 2017; Pellas, 2019; Thai et al., 2017; Tune et al., 2013). However even if the design is well prepared and supported one of the risks is, that students will not be able to make the most of the learning opportunity. This requires clear guidance on how to use diverse resources, understanding the schedule of particular activities, how online activities support/enhance the classroom experience and learning and setting a good scaffolding sequence.

4. Implementation of new design

The module leaders decided that “transform blend” (Bonk and Graham,2005) is required to create efficient learning environment. As the lecture and tutorials had been replaced by 3 hours interactive workshops, the flipped classroom method was selected as the most suitable way forward within the blended learning approach, as flipped model frees up class time for more meaningful in-class activities (Little, 2015; Westermann, 2014). The theories have been per-recorded as series of short clips using Panopto. These clips have been embedded on Moodle and students have been required to reviewed them prior to the workshop. MyAccountingLab - the online platform- has been selected as a tool to help student gain basic accounting vocabulary and practice basic numerical skills. Students have unlimited access to “Study Plan” of

MyAccountingLab, where they can practice exercises that covered all topics of the syllabus. Using “Study Plan” includes solving short accounting problems. finding solution to case studies and answering multiple choice questions. After completing “Study Plan” exercise students are required to complete set of compulsory quizzes. This are based on “Study Plan” practice. In addition, the Moodle site host workshop examples and solution, as well as past exam study question with solution for students’ self-practice.

To ensure that needs of all students were accommodated, when designing theory clips it was assumed that students have no prior knowledge on the topics and the pre-workshop recoding cover all fundamental concepts. This content prepared students for face-to-face workshops. The scaffolding of videos allows students with lack of priori business awareness to build their knowledge as more experience students can move straight to the more advanced videos.

The three hours workshops focus on selected set of case studies from simplistic through moderate and advance that are solved with small group and with peer support. The case studies required the application of knowledge and skills gained through reviewing clips and practicing exercises in “Study plan”. The module leader plays a role of facilitator of the learning process providing feedback and guidance during group activities.

5. Research approach and findings

The aim of this research was to explore how various resource incorporated within blended learning impact on students` performance in an accounting MBA module. The paper looks how practice in MyAccountingLab, engagement with module Moodle resource and session pre-recordings relates to student’s performance. The data has been collected via learning analytic of Pearson MyLab, Moodle reporting system and Panopto analytics.

The following research hypotheses has been formulated in relation to the online quizzes result and the overall performance on the module:

H1: The results obtained in the module are positively influenced by the time and practice spent on MyAccountingLab

H2 The results obtained in the module are positively influenced by the time spent engaging with Moodle activities and resources

H3 The results obtained in the quizzes are positively influenced by the time spent in the pre-test and the results achieved in the pre-test

To test the hypotheses, the following two models have been designed.

Model 1

$$\text{Performance}_{it} = \beta_1 \text{Ques}_{it} + \beta_2 \text{Time}_{it} + \beta_3 \text{Modeng}_{it} + \beta_4 \text{Recoreng}_{it} + \beta_5 \text{Sex}_{it} + \beta_6 \text{Age}_{it} + \varepsilon$$

With

Where Performance is the final result achieved by the student in the module; Ques is the percentage of correctly answered questions by the student when practicing in MyAccountingLab; Time is the amount of time (expressed in minutes) spent by the student in practicing in MyAccountingLab; Modeng represents the module engagement captured as the number of time the student visited Moodle; Recoreng demonstrates the engagement per-workshops recordings calculates as the number of time the student listen to the recordings posted on Moodle.

We use also control variables to test our results. Sex, a dummy variable scoring 1 if the student is male and 0 for female and Age a variable that takes in consideration the age of the students.

Model 2

$$\text{Performance2}_{it} = \beta_1 \text{Score}_{it} + \beta_2 \text{Time2}_{it} + \beta_3 \text{Sex}_{it} + \beta_4 \text{Age}_{it} + \varepsilon$$

Where Performance2 is the result achieved by the student in the online quizzes in MyAccountingLab; Score2 is the result obtained by each student in the pre-test ("Study Plan" exercises) on MyAccountingLab; Time2 is the amount of time (expressed in minutes) spent by the student in the pre-test on MyAccountingLab.

Findings

Descriptive statistics

From descriptive statistics we can notice high variation in the sample: performance marks ranging from 22 to 98 as well as time spent in practising in MyAccountingLab from none to 12,289 minutes. The age varies from a minimum of 26 to a maximum of 45.

Variable	Obs	Mean	Std. Dev.	Min	Max
performance	28	77	16.75753	22	98
performance2	28	82.46429	20.16686	0	99
time	28	1924.25	2599.097	0	12289
modeng	28	6.892857	4.763591	1	17
recordeng	28	3.035714	3.349761	0	13
score	28	73.60714	14.6296	34	98
time2	28	147.2857	34.44572	83	255
sex	28	.5714286	.5039526	0	1
age	28	34.03571	5.534285	26	45

Model 1

In terms of overall results achieved by student there is a clear positive relationship between the performance and time spent by the student in practicing in MyAccountingLab (Time - significant at 10%) and Moodle engagement (Modeng significant at 5%). This demonstrates that the engagement with Moodle activities and time spent in MyAccountingLab positively influence the overall result obtained by students in accounting module.

performance	Robust				
	Coef.	Std. Err.	t	P> t	[90% Conf. Interval]
time	.0011285	.0006375	1.77	0.091	.0000339 .0022232
modeng	1.037691	.50953	2.04	0.054	.1627544 1.912628
recordeng	-.7375722	1.030079	-0.72	0.482	-2.506366 1.031221
sex	-11.75072	7.090378	-1.66	0.112	-23.92593 .4244786
age	.3171204	.4344649	0.73	0.473	-.4289185 1.063159
_cons	65.83608	15.94563	4.13	0.000	38.45514 93.21703

Model 2

The results obtained in the quizzes are positively (significant at 1%) related with the score achieved during practice in “Study Plan” of MyAccountingLab (pre-tests). In this case the other variables appear insignificant.

performance2	Robust				
	Coef.	Std. Err.	t	P> t	[90% Conf. Interval]
score	.8422839	.2413899	3.49	0.002	.4285726 1.255995
time2	.0858156	.1485078	0.58	0.569	-.1687078 .340339
sex	-11.59289	8.427964	-1.38	0.182	-26.03733 2.851561
age	.4389982	.4091921	1.07	0.294	-.2623044 1.140301
_cons	-.4903476	41.47635	-0.01	0.991	-71.57548 70.59479

6. Conclusion and limitations

This study investigated the impact of incorporating some tools of blended learning such online homework', LMS engagement and videos reviews on student academic performance in post-graduate accounting module. The results obtained from our analysis confirm strongly the predictions stated for the first hypothesis and partly confirmed those of third hypothesis, however do not confirm our second hypothesis. The positive relationship between Performance, Time and Moodle engagement highlights that the activity and time spent in MyAccountingLab have a direct and positive impact on the overall result achieved by students. If we focus the attention on the quizzes the results partly confirmed our hypothesis adding also some factors to our discussion. The results accomplished by students in the online quizzes (online homework) are not driven by the quantity of practice (time spent in the "Study Plan" pre-test) but by the quality (score achieved in the pre-tests). Finally, the control variables are not significantly related with the results of the module and the results of the quizzes, meaning that age and sex do not have any impact on the results obtained by the students.

This study is subject to limitations, primarily the ability to generalize the results to the entire population of accounting modules or post-graduate students. When interpreting the studys' results the following limitations should be kept in mind:

- this was a pilot study and the size of the sample was small, so the model needs to be tested on a larger population,
- this research was conducted within the first year after changing the pedagogical approach, so longer data collection period is needed to conduct more longitudinal studies,
- more detailed data should be collected and relations between other factors that impacts on students` performance should be explored e.g. compulsory vs non-compulsory activities

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