IMPACT OF TRACK C ON THE STUDENT EXPERIENCE- ENGAGEMENT WITH ONLINE TOOLS

Dr. Christine Thuranira-McKeever & Dr. Jon Gregson for The Centre for Distance Education (CDE), University of London The MSc in Professional Accountancy (MPACC) was the first of the Track C programmes. It was launched in January 2016 and there were over 1,300 new students registered in the first year. The Track C programmes have been developed with a suite of web-based learning tools, designed with specific pedagogical purpose in supporting different aspects of the students' learning.

This study is the first in investigating the impact of the teaching, learning and assessment framework applied to the MPACC course, establish early signals of impact on student retention and inform potential further developments. The study focused specifically on students' engagement with online tools.

Two data collection methods were used in this study: a survey and open-ended interviews, and user data that is recorded for students on the course.

Findings of note:

- Most of the users have prior knowledge of using a VLE, and therefore a certain level of expectation of usability.
- There is variability in the way students use the online tools and this is influenced by factors such as the amount of time students' have available for their study, their expertise and experience in using online tools and the extent to which they understand and value the tools.
- Users are able to provide some clear ideas on what would improve their experience of using online tools; for example, there was great interest in tools with features that allow some form of feedback
- Data systems need to be designed to allow for links between different data sources, so that a coherent digital picture of users can be captured.
- Although inconclusive, some direct correlation is evident between user and performance data, specifically in the use of online quizzes and the proportion of students that passed the different modules.

Part 1: Survey and Interviews

A survey was undertaken to elicit the views of students enrolled on the MPACC course, specifically on the online learning environment provided for the course.

A small number of survey respondents also took part in individual semi-structured interviews to further explore their perspectives on the course.

The survey and interviews aimed to get information on different aspects of student engagement with the online tools available to them. Specifically:

- a. Do students use the online tools available to them and how do they use them?
- b. Do students understand how to use the tools?
- c. Are some tools used more than others and why?
- d. Overall, do students feel that these tools enhance and support their learning?

To address these questions, the survey asked questions focusing on module design features and on difference aspects of tools and reference material.

Demographics:

693 responses (population of 2589 students).

The survey had a 26% response rate, however only 10% of the respondents fully completed the survey and the conclusions in this report are based on only the complete survey responses.

86% of the respondents were enrolled on pathway 2 of the MPACC. The majority of the respondents resided in Asia Pacific (24%), Africa (23%) and Western Europe (22%), and were males in the 26-35 age bracket.

Most respondents accessed their Virtual Learning Environment (VLE) via a laptop or desktop computer, and the majority of them had previous experience of studying online, either on a MOOC or another online course.

Most of the students (74%) said they had found it easy to access the course.

Module Design features

The survey asked students for feedback on key features inbuilt into the modules.

Overall, the respondents found the general module navigation to be useable with 69% rating it as 'useable' and only 9% rating it 'not useable'. However, only a very small number of respondents found the navigation to be 'very useable''; the main comments and views on usability suggest that:

- i) The online library is difficult to use; it requires too many steps and often does not work
- ii) The navigation is slow with material often taking time to load; moving from one module or activity to another is slow and not intuitive. A site map or search facility within the content would make it easier and quicker.

The majority of respondents reported that they found the welcome videos, the coursework solutions documents and the module overview document to be 'useful' or 'very useful'.





Self-assessment questions:

The use of self-assessment questions was variable, with the largest proportion of respondents reporting that they completed either some or most of them, and only 18% saying they completed all of them. Students were asked about two specific features in the self-assessment questions – the 'flag question' feature and the "rate your answer" feature.

The majority of respondents used the feature to rate their answers, and found it to be easy to use and helpful, whilst just over 50% of those that used the self-assessment questions reported not to have used the 'flag your question' feature. This is a feature which allows students to flag questions so they can return to them for reference; it therefore really serves as a reference reminder and does not offer feedback.

PDF downloads:

An overwhelming majority of 87% of respondents said they downloaded pdfs of course material when this option was available.

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The three main reasons that were given for this were:

- i) Offline access as internet connectivity was not always available
- ii) It is easier to read printed material than on-screen material (and one can make notes)
- iii) Use as reference material-it is easier to do this when the material has been downloaded

Online discussion forums:

Just over half of the respondents (53%) participated in online discussion forums occasionally, only 4% participated daily and 19% reported that they had never participated in a forum.



Based on the ranking, most students use the discussion forums to read posts from others and to post questions. Responding to posts from other students and from tutors were the activities with the lower rankings.

Past assessments:

Unlike the other features, very few students reported to have accessed the past assessment documentation; this is very possibly because the majority of the respondents (86%) were enrolled on Pathway 2, which does not have an examination requirement. Of those that accessed the past assessment documentation, the largest proportion used past coursework solutions, rather than past exam papers and sample exam papers.

Design features wish list:

Respondents were asked about the design feature they would like to see used more or less, and which they would like to be kept the same.

For most of the features students said they would like them to remain at the same level of offering. The notable exceptions are videos, for which 67% of the respondents said they would like to have more of,

case studies and module introductions. The main feature that respondents would like to see less of are self-assessment quizzes; this is only notable relative to other features as in absolute terms, most of the respondents would choose to have the feature remain at the same level.



Study Tools

Students were asked about the extent to which they understood how to use four main tools used in the course, and at what point in their studies they found these tools to be most useful to them. The main tools are the **Reflective Activity workbook**, **Topic Activity tracker**, **Learning Objectives profile**, and the **Coursework Preparation journal (used in the Strategic Financial project)**.

Ranking of usefulness of study tools:

Respondents rated the usefulness of the main tools and a number of other tools also used in the course. The Study schedule and the Online library were considered useful by most respondents. The Reflective Activity workbook and the E-portfolio were found to be 'not useful' by the highest proportion of respondents.





Understanding of how to use tools:



Point of study when the tools were most useful:



Respondents had the opportunity to explain the ways in which the four main tools were useful and to suggest ways in which they felt these tools could be improved. The responses were thematically grouped.

Reflective activity workbook:

This tool received the highest number of responses. The overriding positive theme was that it helped to recap what had been learnt and in identifying gaps in knowledge of the subject area. *Recurring suggestions:*

The workbook could have topic headings or leading questions to act as a guide for the students.

Topic activity tracker:

The two overriding themes here were that the tracker helped in identifying gaps in progress and it helped the students in ensuring that the material had been covered and it was understood. *Recurring suggestions:*

A weekly tracker email reminder would be a useful addition to the tool.

Coursework preparation journal (used in the Strategic Financial project).

The usefulness of this tool also fell under two main themes: it was useful in providing guidelines for coursework preparation and it helped in identifying the main topics of study.

Learning objectives profile:

The majority of respondents felt that this tool was most useful in helping them understand the

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expectations for the next chapter.

Usefulness of the main study tools



Coursework Preparation Journal (Strategic Financial Project)



Learning Objective Profile



Discussion

The majority of respondents in the survey have previous experience of studying online and therefore have a basic knowledge of using a VLE, and a certain level of expectation of usability.

Overall, none of the tools and design features in the course were regarded as being unusable. There is variability in the way the tools are used as is often the case, and this is influenced by factors such as the amount of time students' have available for their study, their expertise and experience in using online tools and the extent to which they understand and value the tools.

The feedback would suggest that some of the features could benefit from having fewer steps and generally being more intuitive (e.g. the online library). More sign-posting, linkages and ease of movement between the pages would make it quicker to navigate the site.

An overall wish for feedback in different formats is evident in the responses given in the survey and in the interviews. An example of this – in using the tools, students expressed more interest in features that allowed some form of feedback e.g. the 'rate your answer' feature over the 'flag the question' feature. Related to this is the wish to be able to develop peer, mentor and alumni support, which can be an additional source of feedback. The tools to support this need to be thought about carefully as currently, genuine peer learning in online discussion forums is not very evident; students use the boards mostly to read others' responses and to post questions. A number of students interviewed mentioned that they had created a WhatsApp group which they found to be more useful and less formal and intimidating than the online discussion boards.

In spite of the online environment, the students valued being able to download study material – the main reasons cited were: downloading allows the material to become more portable, the difficulty of constant internet connectivity and ease of use in terms of making notes and keeping for reference. This is akin to a classroom environment where students generally tend to want notes and handouts.

The increased use video and reduction in text is another key area of desired change which is evident from the survey and interviews.

This part of the study provides one dimension in the landscape of user engagement with online tools; a second dimension which follows below, was developed by looking at analytics data, which can help inform how and when users are engaging with the tools available to them.

Part 2: User Data

The study went on to explore the user data that is recorded for students on the MPACC course. The data were extracted from a master database that holds records for multiple users across different courses, and therefore a generic database, rather than one designed with strategic criteria in mind for the MPACC course. Because of this, the data that has been extracted is generic and fairly limited in the scope it offers for conclusive findings about how MPACC users engage with their online environment.

User data can be helpful in building a picture of how students use online tools, which tools are used more than others and for which modules, any clear patterns emerging on usage during the students' life-cycle and establishing links between the use of learning resources and student performance. This information then helps inform the design of course tools and resources as well as identifying difficulties and deficiencies in existing content.

Data from the four modules of the MPACC were included and the analyses tried to compare usage between the modules. The data were collected for cohorts enrolled on the modules in the biannual periods when students enrol on the programme – January and July, 2016 and 2017.

The four modules are:

- Strategic Financial Management (PAM004)
- Strategic Performance Management (PAM005)
- *Strategic Financial Project (PAM006)
- *Global Issues for the Finance Professional (PAM100)

* Two modules are exceptions and only have data for July 2016, and January and July 2017.

The report considered all the tools for which there were data collected. These include the progress tools, which are comprised of the Topic Activity Tracker, Learning Objectives Profiler and Reflective Activity Workbook. Others tools that are in the database are Quizzes, the Forum, Resources and the Turnitin tool.

Overall engagement with tools:

The highest engagement with the tools was for the module Global Issues (PAM100-2016-July) and lowest was Strategic Performance Management (PAM005-2016-July). Global issues and Strategic Financial Management saw a reduction in engagement across the time periods. The opposite trend was seen for the Strategic Financial Project, where user totals increased from 8,066 (PAM006-2016-JUL) to 10,981 (PAM006-2017-JUL). Engagement on the Strategic Performance Management course remained constantly low with between 200 and 629 user numbers for each time period (fig 1).



Figure 1: Aggregated number of responses by module and time period

There was notable variation in the total digital response entries for different tool types. Overall, Multiple Choice Questions 'MCQs' showed the highest number of responses across the modules (47,651), 'textarea' had 15,301 responses and 'textbox' had 1,003 responses. 'MCQs' had the highest number of responses in three out of the four different modules, except in Strategic Financial Management in which there were a greater number of responses in the 'textarea' category compared to the other two types (fig 2).



Figure 2: Aggregated number of responses by tool type by module and time period

Engagement in the Global Issues module decreased across the time periods for all three tool types. The opposite was seen for the Strategic Financial Project which saw an increase in engagement of the different tool types across the time periods. Engagement in the Strategic Performance Management was low across all tool types with a peak of 530 for 'MCQs' in July-2017 and a low of 13 for 'textarea' July-2016 (Fig 2).

A closer investigation of 'MCQs' was undertaken to look at performance across the modules. The proportion of responses showing no understanding was low, ranging from 1% (Strategic financial project 2017-Jul) to 7% (Strategic financial management 2016-Jul). Full understanding ranged from 34% (Strategic financial management 2016-JUL) to 71% (Global issues for 2016-Jul).

There were four time periods for which the proportion of responses rated as full understanding was lower than the proportion that had only partial understanding. These were in the Strategic Financial Management (2016-Jan and 2016-Jul) and the Strategic Performance Management (2016-Jul and 2017-Jan) modules (fig 3).



Figure 3: Performance in MCQs per module

The proportion of responses showing 'no understanding' was low, ranging from 1% (Strategic Financial Project 2017-Jul) to 7% (Strategic Financial Management 2016-Jul). 'Full understanding' ranged from 34% (Strategic Financial Management 2016-Jul) to 71% (Global Issues for 2016-Jul).

There were four module periods for which the proportion of responses rated as full understanding was lower than the proportion that had only partial understanding. These were in the Strategic Financial Management (PAM004 2016-Jan and 2016-Jul) and the Strategic Performance Management (PAM005 2016-Jul and 2017-Jan) modules (Fig 3).

Complete and incomplete activities:

Data on completed and incomplete activities were investigated, both by module and by activity.

Overall, Global Issues (PAM100 2016-Jul) had the most completed responses (25,568), and the Strategic Finance Project PAM006 2016-Jul) also had over 25,000 completed responses (fig 4).



Figure 4: Number of 'complete' responses by module & time period

Although engagement varied by module and time period, the proportion of activities that were left incomplete was quite small.

Figure 5 shows activities recorded as incomplete totalling 1,234. Strategic Finance Project (PAM006 2016-Jul) had the highest number of incomplete responses (376), almost twice that of the next highest (190).



Figure 5: Incomplete responses by module & time period

The majority of activities had either no or less than 1% of incomplete responses. However, a look at proportions of incomplete responses shows that the forum had a 4.3% incompletion rate and label had a 1.3% incompletion rate, so some work needs to be done to see why incompletion in these activities is so much higher than the other activity types (Fig 6).

Figure 6 below shows completion and non-completion of the various activities. The numbers shown are instances of activity completion for all students and are therefore generic and do not provide a picture that shows specific activity for particular modules.



Figure 6: Complete and incomplete activities for all modules by MOODLE activity

'Capdmcontent' (this relates to the progress tools of the Topic Activity Tracker, Learning Objectives Profiler and Reflective Activity Workbook), and the quizzes were by far the most completed activities and the least completed were the questionnaire and the 'turnitintooltwo'.

An illustration of a module-specific activity chart is shown below, for the Global Issues module, during one module period (PAM100 2016-Jan).

Figure 7: Proportion and number of activities by completion for Global issues module



Further investigation to look into the completion status for the three Global Issues sessions aggregating all activities showed that there were little differences across the sessions, with each session having a completion rate between 99.4-99.8%

This illustration for activity for one module could be further investigated to provide a comparison between the four modules during each time period and further related to student performance data to gauge if there the use of tools has any impact on academic performance.

Relating user data to questionnaire survey and to student performance:

Comparisons were made to relate findings from the user data to those of the questionnaire survey of MPACC students, and to academic performance data.

The questionnaire survey found that the main feature most students would like to see less of in their tool kit was the self-assessment quizzes. This correlates to the user data, which shows that whilst 'MCQs' showed very high levels of activity, tools that required text ('textarea' and 'textbox') showed much lower levels of activity. Related to this, the survey found that the use of self-assessment questions was variable, with most respondents reporting that they completed either some or most of them, and only 18% saying they completed all of them.

Student performance data:

This study compared the two datasets to try to elicit any broad themes that may be evident. Performance data for the MPACC students are recorded on SITS, which is a separate database to that which records the user data. The two databases are not linked in any way, therefore comparison between the use of online tools and student performance is limited. One area in which there appeared to be some direct correlation was when the responses to the quizzes was juxtaposed with the proportion that passed the different modules. This correlation may be coincidental and is inconclusive given the limited data used, but is indicative of the possible links that can be made between user and performance data.



Discussion

The user data that is currently available for the MPACC course was investigated, to try to build a picture of how the students use online tools, understand which tools are used more than others and for which modules, look for patterns emerging on usage during the students' life-cycle and establish links between the use of the tools and student performance.

The use of Learning Analytics is a rapidly developing field and it has increasingly been proven to be invaluable in gauging and improving the student experience; this includes – boosting retention, improving the quality of teaching and from the student's perspective, analytics can help in allowing them to take charge of their learning experience (JISC, 2016). Typically, HE institutions will be looking to answer questions such as areas for course improvements, adoption rate for new tools and resources, links between learner engagement with resources and performance, and identifying students who may be struggling.

To successfully make use of the data that is captured through various sources Virtual Learning Environments (VLE), Student Information Systems (SIS) and Library Systems etc, the different data sources need to be aligned in order to allow for a coherent picture to be built. Learner analytics most generally use log data stored in the background of e-learning platforms or modules and these data are analysed using various learning analytics techniques, as well as structural equation modelling and regression analysis. Kilis and Gulbahar (2016) who undertook a systematic review of studies on learning analytics in distance education point out that stored data from student logs could be better interpreted with the inclusion of other data such as real logs, actual time spent and real interactions rather than logs and clicks, etc. Their work suggests that stored data could be improved with more details that are responsive to the needs of educators, students, and researchers.

The findings in this part of the study have been limited by the nature of the data but it has been possible to get a clear sense of the type of user data that is currently available and the kind of analytics information that this data can provide. Quite importantly it has shown what the shortcomings of the available data are and provided some ideas on the kind of questions that may be answered with a data system that had the appropriate set up. An immediate example would be the linking of the user data with performance data, by the use of the student registration number, to allow an individual student's full digital footprint to be captured and analysed. A strategic approach is required so data systems are set up to capture data that will address the information needs; this includes the way in which the data are stored and the analytics and reporting capabilities that are inbuilt.

The purpose of educational software is to support learning, and online tools are designed with a specific pedagogical purpose to allow this to happen. The usability and accessibility of online tools is a fundamental element in an online course; does the practical element match to the conceptual one? This study aimed to assess, from their direct feedback and from recorded user data, how students on the MPACC course used the online tools available to them, and their attitudes and perceptions of the tools.

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