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Study of Student Satisfaction for "Sandwiches" Delivery Approach

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ABSTRACT

The summer trimester system provides students with greater flexibility to plan their study around work or lifestyle commitments, create options for students to commence a degree sooner or at a more convenient time of the year and enable students to fast track their study. There is increasing number of students enrolled in summer trimester. However, it was found that student engagement during summer is less than when those same subjects are delivered during other trimesters. This research investigates using the "Sandwiches" delivery approach to improve the learning relationship with students. This innovative approach includes the first three weeks intensive on-campus delivery with a range of lectures and tutorials. This is followed by six weeks of on-line discussions, quizzes and self-assessment activities to strengthen the students' knowledge and reinforce learning. The last week of summer trimester is revision to confirm theory prior to an examination. Positive responses from student reflected that this approach can be used for other subjects not only in summer trimester but also applicable in other trimesters. In fact, in order to improve course delivery, higher education providers always collect feedback and comment from students and previous research studies have used various methodologies. This paper demonstrates how to use survey plus case study to analyses student satisfaction.

Keywords: *Case Study, Student Survey, Student Satisfaction, Blended Learning, Higher Education*

INTRODUCTION

Since November 2008, the University in this case study has moved to a trimester system. Autumn trimester runs from the first week of March to mid-June, winter/spring trimester is offered from early-July to mid-October and summer trimester starts from mid-November to February in the following year. Due to the nature of its timeframe, many subjects offered in summer trimester employ an off-campus e-learning delivery model with less face-to-face support than other trimesters. It is believed that the trimester system will (a.) provide students greater flexibility to plan their study around work or lifestyle commitments, (b.) create options for students to commence a degree sooner or at a more convenient time of the year and (c.) enable students to fast track their study.

Records revealed that there is increasing number of students enrolled in summer trimester. For example, according to the case studied subject in this research, there were 55 students in autumn but only 25 in summer during 2010; 63 students in autumn and similar 57 in summer during 2011; 32 students in autumn and increased to 56 in summer during 2012.

However, despite of the high student enrolment, student retention rate in summer trimester is low. Comparing with other trimesters, the level of student engagement in the same subjects, which are also offered in Trimester 3, appears relatively poor. As summer trimester is scheduled from mid-November to the end of February in the following year, there is a two-week holiday period that breaks up the trimester. Many students discontinued their study after the Christmas break. They reportedly experienced difficulties in continuing their study after coming back from holidays. Regarding the delivery methods, students' feedback reflects a demand in more face-to-face support amongst the existing e-learning module with limited face-to-face consultation component offered in summer trimester's subjects.

To improve students' learning experience and increase student retention rate, there is a growing interest for the School and its educators to explore more innovative delivery strategies for summer trimester 3. Nowadays, "flexible education" has become a well-acknowledged notion influencing higher education in Australia. From student, educator and institutional perspectives, the consideration of flexibility can be categorised

into five areas: time, content, access/entry requirements, pedagogy and delivery (Palmer 2011; Tucker & Morris 2011). According to Tucker and Morris (2011), students seek flexibility in the areas of pedagogy and delivery. Educators, however, are only prepared to offer flexibility in delivery. Therefore, the flexible delivery (i.e. multiple medium delivery of knowledge) is essentially the common ground where educators are willing and able to meet students' need for flexibility in learning. Compared with other subject areas, Tucker and Morris' study (2012) further indicates, in the discipline of built environment, both students and educators emphasise the significance of flexibility of delivery. Students want multiple mediums in knowledge delivery that allow flexibility in when and where they could learn, but have little desire to influence content or instructional approach. Therefore, the effective delivery strategies need to not only offer students the experience of flexible learning through e-learning environment, but also meet students' demands in sufficient face-to-face support. A project is developed to explore such innovative delivery strategies and a case study of one of units offered in summer is conducted.

LITERATURE REVIEW

Pedagogically speaking, teaching can be delivered by on campus (face-to-face) or virtual class (electronic supported learning). Prior to design a proper innovative delivery approach, there is a need to understand the desirable components for face-to-face and electronic support.

On Campus: Face-to-Face Delivery Components

In the last decade, the paradigm of teaching and learning in higher education has changed rapidly with the advancement of information technologies and the Internet. Electronic supported learning, i.e. e-learning, has challenged the long-time dominance of face-to-face teaching mode. E-learning offers students and educators this great ability to "be both together and apart, and to be connected to a community of learners anytime and anywhere, without being time, place, or situation bound" (Garrison *et al.*, 2004). It is also highlighted by Garrison (2011) that e-learning should be designed in supporting the nature of the transaction between and among teacher and students. Khan (2005) examines a range of issues that may

affect the quality of e-learning, i.e. issues for institutional, management, technological, pedagogical, ethical, design interface, resources support and evaluation. From the pedagogical perspective, Tucker & Morris (2012) advocate that e-learning need to be informed by the specific demands of disciplinary contexts. In terms of institutional, management, technological and design interface, most contemporary e-learning activities are delivered through online learning management systems, i.e. Blackboard, Moodle, Desire2Learn, etc., which are supported by the host university. By engaging in this type of e-learning, students can easily access learning materials, participate in collaborations, communicate with teachers or peers, and disseminate their learning outputs at anytime, anywhere within the online environment (Moore *et al.*, 2011). As for resources support, many university libraries have taken strategic steps to provide integrated support within online learning systems. In many cases, university libraries are playing a proactive role in providing immediate streamlined online resources and support to students' learning (Boumarafi 2010; Hagel *et al.,* 2012b). Therefore, in addition to on-campus component, the delivery approach should include online tutorial, discussion, support and resources. It is actually a blend of virtual class and face-to-face components.

Virtual Class: Electronic Supported Learning

In the last decade, the paradigm of teaching and learning in higher education has changed rapidly with the advancement of ICT and the Internet. Electronic supported learning, i.e. e-learning, has challenged the long-time dominance of face-to-face teaching mode. E-learning offers students and educators this great ability to "be both together and apart – and to be connected to a community of learners anytime and anywhere, without being time, place, or situation bound" (Garrison *et al.,* 2004). It is highlighted by Garrison (2011) that e-learning should be designed in supporting the nature of the transaction between and among teacher and students. Khan (2005) examines a range of issues that may affect the quality of e-learning, i.e. issues for institutional, management, technological, pedagogical, ethical, design interface, resources support and evaluation. From the pedagogical perspective, (Tucker & Morris 2012) advocate that e-learning need to be informed by the specific demands of disciplinary contexts. In terms of institutional, management, technological and design interface, most contemporary e-learning activities are delivered through online learning

management systems, i.e. Blackboard, Moodle, Desire2Learn, etc., which are supported by the host university/institute. By engaging in this type of electronic supported learning, students can easily access learning materials (written or multimedia), participate in/initiate collaborations, communicate with teachers or peers, and disseminate their learning outputs at anytime, anywhere within the online environment (Moore *et al.,* 2011). As for resources support, many university libraries have taken strategic steps to provide integrated support within online learning systems. In many cases, university libraries are playing a proactive role in providing immediate streamlined online resources and support to students' learning (Boumarafi,2010; Hagel *et al.,* 2012a).

Innovative Delivery: "Sandwiches" Approach

The blended learning mode marries the merits of e-learning flexibility and face-to-face interaction. It is the emerging concept in higher education that integrates or "blends" the flexibility of time and place that e-learning allows with the in-depth connection that face-to-face interaction creates (Poon, 2012). However, it is worth noting that blended learning is not simply one plus one or "layering one on top of the other" (Garrison *et al.,* 2004). Blended learning is about a right combination of delivery methods, i.e. an effective integration of face-to-face and e-learning experience. Most importantly, blended learning needs to suit students' needs and improves their learning experience within a particular context, i.e. disciplinary or subject areas. It represents a quantum leap from any single dimensioned learning theory in higher education. It extends beyond delivery and technology. Hence, blended learning aims at motivating and stimulating learners (Garrison *et al.,* 2004; Poon, 2012; Sloman, 2007).

Regarding pedagogy and delivery, both educators and students believe that blended learning offers greater flexibility for students' learning (Poon, 2012). As discussed earlier, key advantages of e-learning include allowing students to self-pace their study, form and engage in a virtual community, and make well-thought written discussions. This delivery method benefits those students who may be shy in face-to-face situation or speak English as a second language. Others, however, may be disadvantaged by pure e-learning mode. They may not be computer/internet savvy or appreciate a sense of community that can only be created via face-to-face communication. With

the integration of various delivery methods (both online and face-to-face based), students from different backgrounds, with different skills and expectations will be able to find a learning experience that suits them within a blended learning mode. Blended learning, therefore, can be seen as an approach to improve students' learning experience, enhance engagement, increase retention rate and achieve graduate outcomes.

The planning and implementation of blended learning, however, can be complex. Arnold & Collopy (2009) address that the success of blended learning depends on students' comfort level, possible team support in an online environment and an effective design. First of all, students need to be willing to participate in both online learning and face-to-face experience despite the fact they may strongly prefer one over another. Students must be motivated or equipped with skills that will allow them to navigate the online environment and participate in the face-to-face interaction (Poon, 2012). Moreover, at institutional level, sufficient support from different divisions (i.e. library and IT support) for both educators and students are critical to blended learning (Garrison *et al.,* 2004). Because student who most need help often are reluctant to seek it, embedded library resources and librarianship within online learning environment can provide proactive and immediate support (Hagel *et al.,* 2012a). Finally, blended learning is indeed about a good mix of delivery strategies that suits the learning and teaching outcomes. The choice of delivery strategies should aid learning and allow innovation. It can range from online individual quizzes to face-to-face teamwork.

It is also stressed that students' perceptions on learning outcomes have profound impact on the design and implementation of a blended learning (López-Pérez *et al.,* 2011). In addition to developing and improving learning content and technical capacities, educators need to understand students' perceptions of their learning in a blended learning context. According to (Ginns & Ellis, 2007), positive student perceptions of the e-learning experience and face-to-face interaction have strong links to higher grades and overall satisfaction on the blended learning. Thus, it is crucial for educators to clarify with students on the value and expectations of different delivery strategies that is used in blended learning. Since educators and students' existing skills and knowledge level will likely affect their perceptions of delivery methods, a clear communication on the available support services

would reassure students and help them take the maximum advantages of the blended learning mode (Garrison *et al.,* 2004; Poon, 2012).

METHODOLOGY

In order to improve course delivery, higher education providers always collect feedback and comment from students. For example, Allen *et al.* (2002) have used the meta-analysis to compare student satisfaction with distance education to traditional classrooms in higher education. Douglas *et al.* (2006) have measured student satisfactions at a UK university by using survey questionnaire and statistical analysis to analyse the results. Lee (2013) has conducted student satisfaction interview investigating the effects of student learning English using the collaborative online learning approach. However, Aldridge & Rowley (1998) evaluate the methodology which was developed to measure student satisfaction with significant components of the service experience delivered to students at an UK university and conclude to use a questionnaire-based survey to collect information on student satisfaction. It looks that survey plus case study are prevalent.

In fact, the student evaluation of teaching and unit survey can give all students the opportunity to give feedback of their experience in the units they study. Therefore, the proposed methodology is a survey plus case study. Yin (2009) points out that case study can be exploratory. Ideally case study research should use a multiple case study but the rationale behind the choice of a multiple case study over a single case study is to enable comparisons between the observed practices by subjects studied in order to obtain a more comprehensive understanding of the practices. Darke *et al.* (1998) also suggest that both single and multiple case designs can be adopted for exploratory research. Where explanatory research is undertaken, a single case may provide the basis for developing explanations of why a phenomenon occurs, and these may then be further investigated by applying them to additional cases in other settings.

Yin (2009) states that exploratory case study research can be performed using document, video or audio tape of interview, or surveying certain group of people about their experiences. Uma & Bougie (2010)

also contend that using a combination of data collection methods such as archives, interviews, questionnaires, it can be used to provide descriptions, test theory, or generate theory.

As far as data is concerned, Saunders *et al.* (2007) suggest using multi-method approach, which uses both quantitative and qualitative data collection and analysis procedures that are applied either in a concurrent or in a sequential design. This approach is also supported by Creswell & Clark (2011) that researcher may collect, analyses, and mixes (integrates or connects) both quantitative and qualitative data in a single study as it fits.

The next step is to decide on what level of information is required from each question in the survey. It would seem obvious that survey questions should always relate to the aim of the survey. However it is easy to lose sight of this when drafting the questions. Since the questions are the most important detail of the instrument, each question should be written with the target audience in mind.

Quite often when the questions are being drafted, the style is clear to the survey designers. However what it must be kept in mind is that neither teachers nor the researchers will respond to the survey. In doing so, the questions must be clearly structured and unambiguous so the students in the sample will understand what they are asking. Often, researchers build up a schema of information regarding the survey and will use that to interpret an ambiguous question which makes sense to them because they can "fill in the gaps" with what they already know. Respondents, however, do not possess a schema as rich as the researchers, therefore read the questions verbatim, because they are written. It is important to keep the aims and objectives of the survey in mind when formulating questions in order to obtain accurate data to improve course delivery in summer trimester.

For the case studied subject, originally, during summer trimester, students completed in activities including reading lecture notes, readings, pre-recorded lectures, online tutorial and discussion. When using the "Sandwich" delivery approach, lectures are delivered in face-to-face mode over a 3-week period at the beginning of the trimester. All these lectures are also recorded and made available online for review. Students are then supported for the remainder of the trimester through online tutorial activities,

quizzes, and assessment guidance. One final face-to-face revision lecture will be held at the end of the trimester, prior to the examination period.

At the end of the trimester, students are asked to participate in an online survey. This is an anonymous online survey. Students can login to the university website to read through the plain language statement and consent form. Then, they can complete the online survey questionnaire. Once submitted, information cannot be identified or withdrawn. Participants are asked to respond what their opinions are as following:

1. Structure of "Sandwich" delivery.

2. Lecture Format: recorded online lectures and face-to-face.

3. Tutorial Format and Support: face-to face and online.

4. Learning Resources.

5. Support for the Assessment.

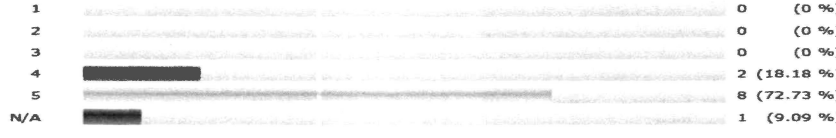
6. IT Support and Performance.

7. Could each delivery method be adopted in other trimesters or subjects in the School?

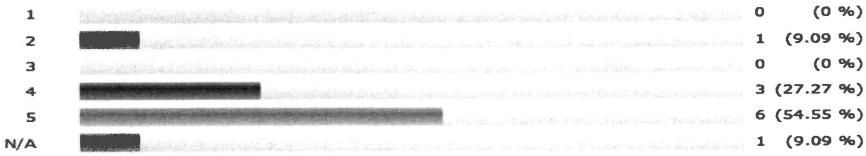
RESULTS AND SUMMARY OF SURVEY

11 students have participated to the survey and the results are analysed as below:

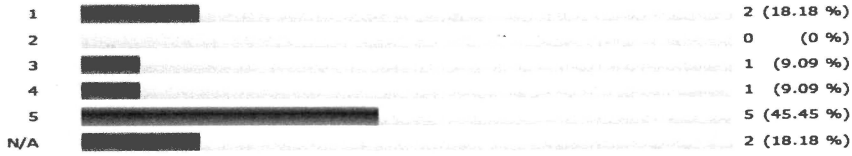
1. Structure of "Sandwich" delivery.



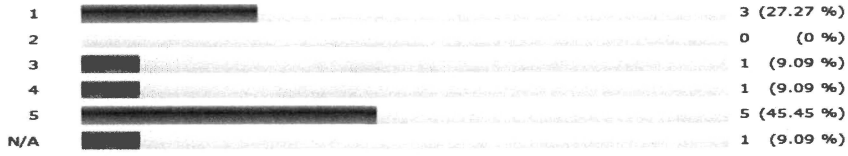
2. Lecture Format: recorded online lectures and face-to-face.



3. Tutorial Format: face-to face and online.

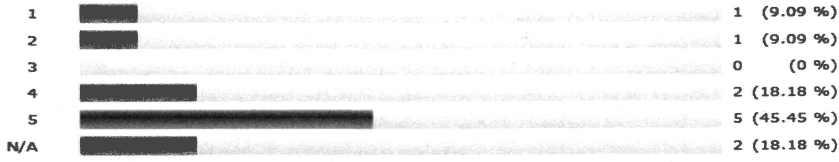


4. Tutorial Support: face-to face and online.



5. Learning Resources

6. Support for the Assessment



7. IT Support and Performance

8. Could each delivery method be adopted in other trimesters or subjects in the School?

   The majority of the students "Agree" that the "Sandwiches" delivery method can be adopted in other trimesters as it provides both face-to-face materials combined with online content. No student "Disagrees" to adopt this approach in other trimesters or subjects.

   One student comments that this method can be 'only for subjects that has a small amount of content in lecture and two subjects require 100% face-to-face time'. Another student comments that this method is only suitable for one particular subject but without stating any specific reason. A student adds that 'tutorials need to be practical with additional support, such as industry examples', while another student says that face-to-face lectures and online tutorials are the best way of delivering any subject. A student also recommends that this method is especially applicable for subjects at advanced level but not suitable for elementary level because higher year students do not require every lecture or tutorial to be face-to-face.

9. Provide any further feedback or suggestions they might have.

   A student stated, 'from a time management perspective having the intensive days is fantastic and I hope that you do try this for other subjects'. Another student added that 'the "Sandwich" delivery is great if students are able to attend campus for the four days recommended classes, the subject however also needs to be able to be completed successfully from a purely online perspective'.

Some students are not satisfied with the technologies and concluded that 'with the technology available today you should be able to provide i-tutes (recordings of the face-to-face tutorials) for the online students who were unable to great face-to-face classes that were offered'. The delivery is very good 'except for the quality of the recorded lectures'. For example, during the lecture, the lecturer drew things on the board, as an off campus student using only recorded lectures it was not possible to see the information written. An overseas student added that 'the recordings were appalling at best. As a student completing the subjects from overseas, and restricted to purely online modes of communication the lectures were so quiet that with noise cancelling headphones....this should have been checked by the IT Staff'. Video at the start of the subject outlining how to get support and information are required.

Library support should also be improved. Access to online resources through the library should be much easier to manage, and updating the old study guide is needed.

Online support was not adequate and 'tutorials need to be made clearer'. For a first time delivery of this system, it went fairly smoothly; most kinks are those which can only be resolved with time.

DISCUSSIONS

The majority of students (91%) are satisfied with the structure of the innovative "Sandwich" delivery approach, while most students (82%) are satisfied with the both recorded online and face-to-face lecturing format. Although some students (18%) are not satisfied with the tutorial format, the majority (55%) still find the face-to-face and online tutorial satisfactory. It is noted that there is one response of very not satisfied with the learning resources but the majority (70%) still find it satisfactory. While two students are not satisfied with the support for assessment, only 45% find it very satisfactory. Finally, three students are not satisfied with the IT support and performance, though three students still find it excellent.

This innovative delivery method is welcomed by the students. The retention rate is greatly improved. There were six and seven students discontinued during the summer trimester of 2010 and 2011, but only four drop-out in the summer of 2012.

In summary, students' feedback and suggestion are positive and commendable. It provides a 'better accessible to those students taking the subject as 100% online which is now possible with the mixed delivery option'. A student reiterated that 'face-to-face lectures follow by online support is a good idea'. For the first time using the "Sandwiches" delivery approach, it went fairly smooth, most defects and some entanglements, such as IT and library supports, can be rectified and fixed next time.

CONCLUSION

This paper demonstrates how to use survey plus case study to analyses student satisfaction. Today, more and more people wish to pursue further development through higher education. As a result, an increasingly number of students rushes back and forth between lecture theaters and workplaces. In response to students' demand in flexible learning, the studied university in this paper has introduced the use of e-learning and web-based tools. Study material is delivered via the Internet including audio and video files, media in the form of text, image, animation etc. Tutorials and presentations can also be conducted online. However, many students still desire face-to-face support in their learning. It is undeniable there is a demand of flexibility delivery, which needs to accelerate the studies, catch up delay and suit the individual's pace in learning.

This case study recognises the challenges, faced with educators teaching in summer trimester, in ensuring students satisfaction, improving students engagement level and increasing retention rate. It also acknowledges the disciplinary difference in educators and students' perceptions and expectations of a successful learning in higher education. The blended learning theory is identified and selected as the theoretical foundation. It is used to explore innovative delivery strategies to enable improvements for flexibility delivery of accelerated summer trimester in the School of Architecture and Build Environment.

"Sandwiches" delivery is coined here to provide a vivid description of the blended learning delivery used in the case study: a combination of on-campus, off-campus and on-campus learning schedule, which mirrors the three-layered but integrated face-to-face, online and face-to-face delivery strategy. Most importantly, it is blended by real and academic. In the case study, most students applaud the "Sandwiches" delivery approach including both face-to-face and online components. However, improving students' learning experience and engagement is not all about offering recordings of lecture and tutorial videos online. Providing sufficient learning support includes library resources and learning resources are also essential to the success of blended learning. Due to the small number of respondents in this case study, larger scaled studies, however, will be needed to determine benchmarks for other online subject delivery in the University and School at a broader level.

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