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An exploration of dis-confirmation of deeper learning expectations using choice theory

Wade Jarvis^{a*}, Saalem Sadeque^a, Ingrid Mary O'Brien^b

^aUniversity of Western Australia, Stirling Hwy, Crawley, Perth, 6009, Australia

^bMurdoch University, South St., Murdoch, Perth, 6150, Australia

Abstract

Expectations are considered a key component of satisfaction, with student satisfaction a key driver of potential positive outcomes to the university. Little work has considered the teaching mode expectations and dis-confirmation of expectations of students, especially for deeper learning in blended learning and flipped classroom environments. Prior to exposure to a blended learning delivery of online recorded lecture, face-to-face workshop and tutorial in a large class environment, students in a tier 1 research university in Australia were asked to choose their preferences for these various modes, along with other attributes, such as time allocation and the type of materials that should be covered. The same survey was administered at the end of semester. The results showed that post the blended learning delivery, 24 percent of the sample preferred a true blended learning model incorporating online lecture recordings and a total of 39 percent preferred a three-tiered model of some description incorporating lectures, workshops and tutorials. 44 percent of the sample preferred a weaker participation environment post the blended model. The results are positive given the experiment did not control for the students perceptions of the quality of the blended learning delivery.

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* Corresponding author. Tel.: +61-6488 7154; fax: +61-6488 1055.
E-mail address: wade.jarvis@uwa.edu.au

1. Introduction

Little work has considered managing student expectations for newer models of learning. This is becoming increasingly interesting as a line of enquiry because of the onset of larger student classes and therefore the potential for preference variation by students and subsequent differences in knowledge levels and attitude levels to deeper learning models, such as blended learning and flipped classrooms. Flipped classrooms can allow greater generic skills development, such as critical thinking skills with an expert lecturer or communication skills development, for example, as the initial knowledge transmission process can be placed in an online channel. Preferences by students for these methods can be a signal for greater involvement, participation and engagement, as they are positive expectations. Also, such preference studies can identify potential low participation students and identify characteristics that might define these types of students. Subsequent early interventions can be implemented to increase the participation and engagement of these types of students.

In this study, preferences for a range of blended learning “attributes” were presented to a cohort of 780 students undertaking a level 1 unit at a research intensive university in week 2 of their study. While the cohort mainly included first year students, the unit was recently categorised as a broadening unit within the university, as well as a core unit within the commerce stream. Therefore this marketing management unit had a significant increase in student numbers starting from 2012, as well as a very diverse range of students across the university. 2014 calendar year reflected the start of a comprehensive blended learning model. The first preference study was presented to students in week 2, prior to the commencement of the ‘weekly’ structure. The blended learning model incorporated a flipped classroom strategy. Students came to the newly labelled workshop in the traditional lecture time for a combined small and whole group discussion. Tutorials became the time and place for developing skills in teamwork and presentations, as students worked on their group assignments. The lecturer “offloaded content” into an online environment as pre-class activity (McLaughlin, Roth, Glatt, et al., 2014). This included either a small youtube video to assist students in trawling through the content or a detailed youtube video incorporating lecture slides, as well as online support materials including quizzes and video cases.

The same survey was re-delivered to students in week 12 of the semester. In total, 563 students completed the pre-survey (73% response rate) and 409 students (53%) continued to complete the post-survey. Students were given a 5% assessment incentive for completing both surveys, but had to complete both surveys. The survey was conducted by utilising the best-worst research design, with students provided 12 tasks with each task comprising 5 options incorporating different combinations of the attributes under investigation. Respondents had to choose their ‘best’ or ‘most preferred’ and ‘worst’ (least preferred), of which these repeated tasks could be dissected to identify a preference parameter for each attribute level. An example of an attribute might be lecture mode, with two levels of ‘recorded online lecture’ or a ‘face-to-face lecture’. A latent class method was utilised to test for heterogeneity (group differences) in the data and to define potential groups in terms of those students that might be considered expecting or preferring a greater engagement model (i.e. blended learning model) or a low engagement group of students who might expect or prefer low engagement in terms of no workshops, for example. The attributes of the study are shown in table 1. In this paper, the pre and post data were analysed to determine students that preferred the full blended learning model, defined as an online lecture with face-to-face workshop and tutorial, and to assess where these students’ preferences may have differed from the first survey results. The aim of the manuscript is to determine what sort of preference structures led to the final preference for a full blended learning model and what other groups might exist in the post survey. Here introduce the paper, and put a nomenclature if necessary, in a box with the same font size as the rest of the paper. The paragraphs continue from here and are only separated by headings, subheadings, images and formulae. The section headings are arranged by numbers, bold and 10 pt. Here follows further instructions for authors.

Table 1. The Attributes and levels within each Attribute for the study

	Attributes	Level 1	Level 2	Level 3
Lecture	Mode	Recorded Online	Face-to- face	
	Delivery Time	30 minutes	1 hour	2 hours
	Content	From the text	Additional to the text	Both from text and additional
Tutorial	Mode	Online	Face-to- face	
	Delivery Time	30 minutes	1 hour	
Workshop	Mode	Online Discussion	Face-to- face	No Workshop
	Delivery Time	30 minutes	1 hour	2 hours

2. Background to Study

It is generally recognised that a surface teaching and learning approach can lead to unsatisfactory application of knowledge in real world contexts (Bacon & Stewart, 2006; Gow, Kember & Cooper, 1994). Surface learning can be strongly correlated with a low involvement environment, where students are supported for involvement via rote learning. Students are expected to be highly involved with the content to pass an exam but are not required to participate much past the actual exam process. Surface learning requires short term memory and rote learning behavior by students in order to attempt to pass the course assessment. In contrast, an engagement environment appears to correlate with a deep learning approach and is the desirable approach from a graduate outcome perspective (Bryson & Hands, 2007). In a deep learning approach, students learn for understanding by interacting with the course content and by relating ideas to previous knowledge and experience (Jarvis, Halvorson, Sadeque & Johnston, 2014). Engagement models look to not only the knowledge value attained by the student in the learning environment, but also the skills value that may also be attained, both skills for deeper learning and generic skills such as communication skills or group skills.

Course (unit) structures can enhance engagement and deeper learning via structures that develop skills, as well as the greater participation environments increasing the knowledge of students. At low levels of deeper learning, activities focus on the remembering of concepts so that students have the facts. Activities focusing on application (medium level deep learning) require students to use information to : (a) deduce the significance of results, (b) apply formulas to new problems, (c) relate theoretical abstractions to real situations, or (d) analyse patterns in relationships among concepts and develop generalisations from them (Anderson, Bloom & Krathwohl, 2001). At the higher level of deep learning, students would be required to evaluate and make judgments, to choose the best alternative and to justify such choices (Anderson, Bloom & Krathwohl, 2001). Embedding deeper learning activities, therefore, seems intuitive. However, being able to apply this to increasingly larger classes of undergraduate students can prove difficult. Concepts such as blended learning and flipped classrooms provide the necessary tools in today's age to better embed deeper learning into courses at the undergraduate level.

While it can be argued that the lecture format has its advantages, typically for the communication of lower order knowledge and understanding, it is usually transmission oriented: content (information) is transmitted to learners, and learning is assumed by lecturers (Jarvis, et al. 2014). One of the criticisms is the lack of promotion of long-term retention of key concepts and applications in real world settings (Bacon & Stewart, 2006). It therefore can be concluded that the embedding of critical thinking skills, which are the higher level deep learning activities reported earlier, can be incorporated into lecture deliveries by redefining the lecture as a workshop and incorporating such activities into this normal face-to-face time. Lectures can be provided online as part of a blended learning model.

From an engagement perspective, course structures focusing on higher level learning, not only can increase the generic skills development of students, but also improve the longer term retention of concepts and the deeper understanding of these concepts, to enhance graduate outcomes. In an environment that promotes high involvement

but not necessarily high participation and engagement, it would be useful to understand whether the adoption of engagement and deeper learning at the unit level, especially at level 1 delivery, could actually lead to positive preferences by students.

3. Method

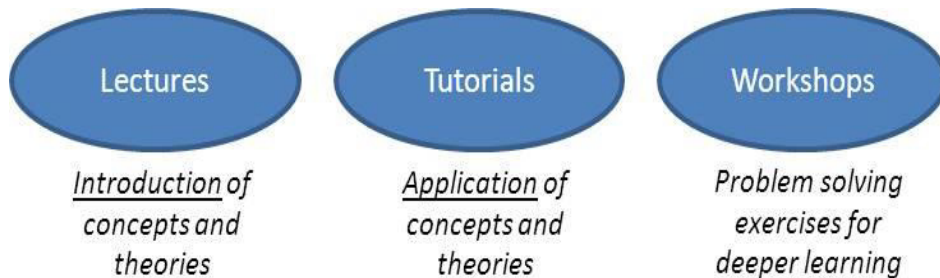
A range of teaching and learning attributes were presented to students, to gauge their preferences for these prior to experiencing a newly established engagement model incorporating blended learning and flipped classrooms. The blended learning and flipped classroom strategies allowed for deeper learning as well as problem solving skills and critical thinking skills to be explored. The tutorial attribute allowed for team skills to be developed as well as presentation skills. The Learning Management System for the unit reflected this, as shown in Figure 1.



Fig. 1: LMS structure and naming to reflect learning focus

For the study, lecture, tutorial and workshop were developed into further attributes of mode (online, face-to-face or no option), length of time of each session, and in the case of lecture, whether the lecture should incorporate additional content in addition to the text (see table 1). These were therefore developed into specific levels. Given lack of exposure to these different teaching styles for the vast majority of the respondents, particularly a pre-recorded online lecture and face-to-face workshop, respondents were informed of the differences of the different techniques prior to undertaking the survey. In line with the LMS structure, lectures were defined as that which introduces concepts and theories, tutorials as that where application of concepts takes place as well as generic skills, and workshops where critical thinking and problem solving exercises are presented for deeper learning. This is shown in Figure 2. The survey was presented to students via the unit's LMS, as a URL utilising Limesurvey online survey tool. As mentioned, students were presented with an incentive of 5% for completing the same survey twice. The research was conducted using established ethics protocol for conducting research, including adherence to the university's ethics clearance procedures.

Blended learning involves teaching an undergraduate unit utilising various models of delivery to maximise learning. This includes:



We will show you 5 options of blended learning within each scenario.

We will then ask you to tell us which option you prefer the most and which option you prefer the least.

We will show you a further 11 scenarios similar to the one below. Each scenario will show options comprising different combinations. The scenarios are designed to ensure we are able to truly understand your preferences. As such even though some may seem similar please answer for all scenarios.

Fig.2: Introduction to the Survey

4. Results

53.3% of the sample comprised Males. 96% of the students were full-time enrolled in their course of study. 28.8% of the sample comprised 17 year olds, 23.8% 18 year olds, and 20% 20-21 year olds. 66.4% of the sample comprised 1st year students, followed by 17.4% 2nd years and 9.5% 3rd years. These proportions further reflect the earlier mention of the unit being a broadening and core unit at the university. 1.2% stated that they were under full-time employment. A further 23% stated that they were part-time employed, with a further 37% stating casual employment, with 38% not employed and fulltime students. An initial pass of the second survey data showed that after the exposure to the delivery over the course of the semester, 24% of respondents preferred the blended learning model of recorded lecture, face-to-face tutorial and a face-to-face workshop, although the preference for the workshop was weaker than the preference for the lecture and tutorial. The students also preferred only the text book to be covered rather than additional material. Students could not process this attribute in the first survey undertaken in week 2 (i.e. the results for this attribute were not significant), suggesting that for most of them, the idea of utilising materials outside of the text was unfamiliar to them, given the still traditional focus on textbooks in secondary education in Australia. Also, students in first year may prefer the security of the textbook and not prefer anything else. In contrast, a group representing 13% of the sample wanted a complete model, but incorporating face-to-face components for all three delivery types and for the textbook as well as additional material to be covered in the unit. This group was not explained by any of the covariate characteristics tested.

The blended learning preference group (24%) were a mix of year levels, and no covariate tested was significant in explaining this class in relation to the other classes in the data. Covariates of distance from campus, degree studied, age, postcode did not prove significant. Learning styles was not tested as we agree with Reeve 2012 that multiple levels of engagement (i.e. agentic engagement) cannot take place without participation opportunities in the classroom. 42% of this class of respondents came from a group of respondents from the pre-survey that had very strong preferences for a face-to-face lecture. This group also showed tendencies towards a three-tiered model, as they had established preferences for face-to-face workshops as well. This group, while not significant, did show a pattern toward students in their second year of study. A further 27.6% came from a class of students in the pre-

survey that did not want a workshop at all and were focused strongly on the time aspects of these attributes. The lecture and tutorial time were more important than the type of delivery of each of these modes. These students, while not significant, did show a pattern of being students in later years of study at the university.

The results show that a blended learning model incorporating online lecture can have merit as a delivery in a very large undergraduate unit. 39 % of the sample preferred a three-tiered model of some description after the threetiered blended learning mode was delivered. The blended learning preference group changed preferences to the online lecture delivery from a large preference for a face-to-face lecture. The results also showed that a great majority of second years with no preference for workshop in the pre-survey represented 43% of the smaller group of students that wanted the high participation model, incorporating the three modes in face-to-face as well as additional material outside of the text. The results also highlighted in the post survey a 44% sample of students who preferred a low participation environment, with weak preferences generally and no preference for a workshop. This is a concern, especially given that these students, while not significant, showed a pattern towards being 1st year students. While the first pass of covariates did not prove significant, further work will redefine these variables which may lead to a better explanation of this group of students. Further work could also investigate marketing interventions impact in changing preferences (attitudes) towards blended learning models.

5. Conclusions

Research into engagement and student engagement has considered the psychological states of participants, such as motivation in the engagement process (Reeve, 2012) and satisfaction with the organisation (van Doorn, Lemon, Mittal, et al., 2010). Other research has considered the importance of the focal-organisation characteristics, such as platforms and processes for customers or participants to engage at a high level (Jaakkola and Anderson, 2014; O'Brien, Jarvis and Soutar, 2016). In this research we combine preferences of students and expectations to show that blended learning preferences for deeper learning can be positive. However, the results indicate that passive learning models provided at the same time may influence students in the negative and this needs to be addressed by tertiary education institutions when implementing engagement learning models.

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