

## Capture and Keep FYE: Lecture recordings are not a game

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### Abstract

*The purpose of web-based lecture technologies like Mediasite, Lectoria or Echo360 is to facilitate and support flexible options for students and to support their learning. However many academics believe lecture recordings encourage low participation rates in lectures, and that they are not suitable technologies for promoting learning. The aim of our project is to uncover the ‘when why and how’ students of in our regional context engage with lectures. Ultimately we will develop a lecture delivery best practice toolbox that caters to synchronous and asynchronous audiences to enhance first year STEM learning experiences and improve student success. In doing so we hope to dispel current academic sentiment about lecture recordings and to drive a fundamental shift that recognises the virtual audience and the need for purposeful modifications to classroom pedagogy. This paper reports on our preliminary findings and the new lecture practices and initiatives developed to date.*

### **Myths and Realities when considering Web-based learning technologies (WBLT)**

Utilisation and adoption of learning enhancing technology is overshadowed by numerous misconceptions and realities. The literature is clear that students like the idea of recorded lectures (Albion, Loch, Mula, & Maroulis, 2010; Drouin, 2013; Preston et al., 2010; Sloan & Lewis, 2014). Many researchers in the tertiary education acknowledge that present day students have increased commitments in relation to both work and family (Albion et al., 2010; Preston et al., 2010), and this is one of the reasons cited for the increase in popularity of and expectation of access to lecture recordings (Preston et al., 2010). Students believe that access to lecture recordings has a positive impact on their learning and that they are able to learn just as well using recordings as attending face to face lectures (Gosper, 2008; Preston et al., 2010; Sloan & Lewis, 2014). Importantly, from a student perspective, the provision of recorded lectures doesn't necessarily equate to non-attendance (Drouin, 2013; Sloan & Lewis, 2014).

Sloan and Lewis (2014) suggest that the findings of some recent studies indicate that lecture capture has a potential to cater for students with different learning styles but that more research is needed to confirm this. Studies show that there is a difference between the way that deep and surface learners utilise lecture recordings and the correlating students' assessment performance related to that particular content (Drouin, 2013; Sloan & Lewis, 2014; Williams, Birch, & Hancock, 2012). Importantly, Drouin suggests that lecture recording availability may have a negative impact on new inexperienced students or students already at risk of failure (Drouin, 2013). This concern is paramount for the first year (FY) science cohort at USC, on which this research is focussed.

The literature confirms that, simply making recordings available, without additional strategies that support and encourage effective usage of those resources does not lead to positive student outcomes (Sloan & Lewis, 2014). We contend that it may be possible that students are simply

not utilising the recordings because they are hard to navigate, but also because students may not find them that engaging.

The challenges of using lecture recordings is of particular concern for FY students transitioning into tertiary education and of particular concern at USC where a high proportion of students are first in family (%) and from a low socio-economic background (%), which have both been associated with lower rates of completion (Edwards and McMillan, 2015). Compounding our institutional context is the wider problems surrounding STEM. There is a difficulty engaging students with STEM courses particularly where traditional didactic teaching methods are employed, something synonymous with large FY courses (Gasiewski et al., 2012). The situation is compounded by the fact that foundational STEM courses are by nature complex and content heavy, and often the concepts are difficult to conceptualise and comprehend.

This is further impacted by the wide belief amongst academics that lecture recordings negatively impact student success and that there is a direct relationship between access to lecture recordings and student attendance (Preston et al., 2010; Sloan & Lewis, 2014). Whilst WBLT appears to be largely embraced and encouraged at the institutional level, academic staff continue to voice these concerns and reservations at USC and this is echoed in the research in this area (Preston et al., 2010; Sloan & Lewis, 2014; Taplin, Kerr, & Brown, 2013). According to Preston et al. (2010), academic staff that adhere to a transmission model of teaching are less likely to accept the potential benefits of lecture capture, whilst others who are beginning to question the role of traditional lectures and are responding by making changes to their course design and lecture/lectorial delivery – making them more engaging, encouraging discussion, and active learning.

### **Aims of our project**

The overarching aim of this project is to develop a best practice lecture delivery toolbox that caters to both synchronous and asynchronous learners to improve FY STEM student engagement and ultimately success. Through action research the project will uncover the ‘when, why and how’ students interact with live lectures and lecture recordings, and uncover their views on course content delivery in large content-heavy FY service courses. In doing this we hope the power of the student voice will evoke a change in our colleagues firmly held views that lecture recordings are a deterrent to student attendance and success, and that as a consequence of our project we will be able to drive renewal of lecture delivery practices and course curriculum.

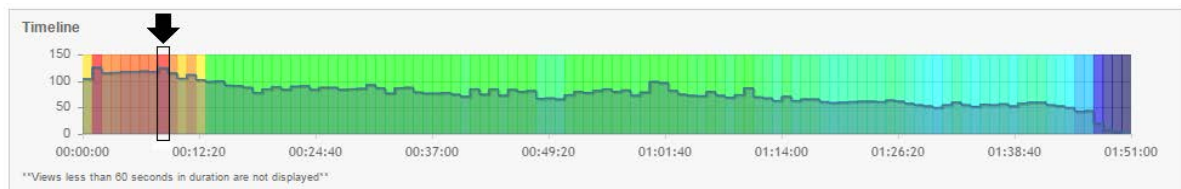
To collect this data, the team developed an initial survey instrument that included a combination of Likert scale, closed and open questions to explore student sentiment about current lecture delivery practices in the project’s target courses (subjects). The survey was refined for each iteration of the action-research cycles. Ethics approval for the project was provided by USC Human Ethics Research Committee (Ref A15702).

The focus of this study to date has been two large FY STEM service courses. Students enrolled in 17 STEM and STEM-related programs at the University of the Sunshine Coast are required to complete either Cell Biology (LFS100) or Introductory Bioscience (LFS103), typically in the first semester of their FY. Cell Biology is an introductory course that introduces students to the fundamentals of cellular life in both eukaryotic and prokaryotic organisms, this year there were 579 students enrolled in the course at commencement of semester. Introductory Bioscience is designed to provide students enrolled in allied health and sport science courses

with the scientific principles that form the basis of human physiology and anatomy, this year there were 876 students enrolled in the course at commencement of semester.

The key driver for this project is evident in the lecture capture analytics for both of the courses, which mirrors the evidence in current literature. Mediasite analytics for each of the courses found similar student engagement with lecture recordings; where approximately 59% of LFS100 students and 70% of LFS103 students watched the Mediasite recordings in Semester 1 (2014); but on average LFS100 students only viewed the first 41 minutes and on average LFS103 students only viewed 51 minutes of the total (1 h and 50 min) lecture recordings.

An example of the type of Mediasite analytics available are lecture ‘heat maps’ (Figure 1). Heat map patterns illustrate the number of times that a particular minute of a lecture recording has been viewed. The ‘hotter’ the colour the larger the viewership at that particular minute. A similar pattern for all lectures recordings in LFS100 and LFS103 indicated that the hottest and most watched elements are in the first 10 minutes (Figure 1).



**Figure 1:** Heat map of total LFS100 users (n = 94) and their total number of views (n= 198) per minute increment, over the Mediasite lecture recording, Semester 1 2014.

### Preliminary findings

This phenomenon gave us the title for our project: Capture and Keep – which aims to increase the number of minutes of a Mediasite recording that students watch.

The initial survey was presented to LS100 and LFS103 students, in Semester 1 and Semester 2 2015, during their week 13 lecture. After the Semester 1 survey findings were analysed we designed and trialled a new lecture template for Semester 2 (2015). Our modifications to the template were largely informed by the students responses to two of the survey questions (Table 1), which highlighted both synchronous and asynchronous current lecture delivery practices needed a purposeful rethink to improve student engagement.

After the Semester 2 findings were analysed the new lecture template was adopted for these courses. The lecture template is designed to break the 2-hour content-heavy lecture into smaller ‘themed’ learning concepts that clearly underpinned the learning objectives of the lecture.

The lecture concepts were aligned with the relevant chapter sections in the course textbook and the lecture revision exercises. To complete the suite of changes we also reviewed our assessment items, where applicable (i.e. final exam), to ensure each learning concept, in line with the learning objectives was met in the assessment task. An overview of our lecture template will be presented in a poster titled ‘Capture and Keep: lecture slide and resource template to engage 1<sup>st</sup> year Biology students’.

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**Table 1:** Collated Semester 1 (n= 268) and 2 (n= 78), 2015 LFS100 and LFS103 student survey results; **a)** ‘How could live lecture be improved?’ **b)** ‘How could lecture recordings be improved?’ (Students could tick all that applied), results are presented as a percentage.

	Semester 1 (%)	Semester 2 (%)
<i>a) Q. ‘How could live lecture be improved?’</i>		
Easier navigation to find what I am looking for	20	15
Broken down into smaller packages (covering same content)	24	26
Clearly identified learning outcomes throughout lecture	21	19
View the lecturer along with the lecture slides	52	41
Downloadable file- so can watch offline	56	53
Other (please specify)	11	13
<i>b) Q. ‘How could lecture recordings be improved?’</i>		
Clearly identified learning outcomes throughout lecture	23	22
Revision questions asked throughout the lecture	53	47
Inclusion of case studies/related examples	26	19
More interactive delivery	30	29
Other (please specify)	6	4

In addition to the development and implementation of the lecture template, and enabled by a recent upgrade to our lecture capture system (Mediasite), we now post-edit the recorded lecture files for LFS100 and LFS103, so that students can more easily navigate through the recording. We ‘chapterise’ the recorded file, by inserting bookmarks that correspond with the relevant lecture concept title. In addition, we also change the name of the Mediasite lecture file, so that students could easily identify the lecture based on lecture topic name rather than the default date and time of lecture delivery. This change addressed qualitative feedback that indicated students were frustrated about not being able to easily identify and navigate the recording.

## Conclusion

Student success in STEM programs and tertiary education more broadly, is underpinned by successful transition into their FY of study. A barrier to their success can in part be due to the lack of engagement with, and the complexity and breadth of the content in, large FY service courses. The focus of this study is to uncover how students engage with the lecture material in large FY content-rich courses that support many of the science and allied health programs at USC, to ultimately improve engagement and successful transition through their FY. This initiative not only aims to impact positively on the student learning experience in STEM at USC, but also challenge academics to embrace technologically enhanced lecture delivery practices. Initial findings have been disseminated at the school and faculty level, through these meetings and project member’s networks early adopters have implemented initiatives and practices developed in this project. Including two other FY STEM service courses and four second/third year STEM courses. With further revision and development of the initiatives and practices we hope to contribute to the advancement of technology enhanced teaching practices throughout the sector.

## Questions and issues for participant discussion

Through a parody of the game “*Cards against Humanity*”™ we will reveal our research findings to date and discuss the following issues;

- What do you see as the barriers of lecture recordings compared to face-to-face?
- What practices do you employ to make lecture recordings more engaging?
- Do you regularly conduct post editing of lecture recordings, if yes what sorts of things do you modify, and why?

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