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EXPLORING LECTURERS' ACCEPTANCE OF ONLINE MEDIA FOR TEACHING

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Abstract:

With technological advances and the resultant increase in "tech savvyness" of generation Y students, universities around the world have been readily embracing online technologies to make their courses more convenient for today's students. Building on the TAM model, media richness theory and educational literature, this study will provide empirical evidence for the effects of perceived usefulness, perceived ease of use, subjective norms, self efficacy, organisational support, teaching styles and stress on the lecturers' choice to adopt usage of online media for lecturing. This paper reports the first phase of the study using data collected by interviewing academic staff.

Keywords: Technology Acceptance Model (TAM), Media Richness Theory (MRT), Online media, e-learning

I. INTRODUCTION

With increasing student numbers, changes to student demographics, limitations to room sizes and equipment availability, online media can be seen as a response to addressing the changing context of higher education. The term online media is used throughout this study to refer to the range of technologies used to deliver digitally captured face to face lectures to an online community. Using online media, students can access educational content at their own convenience at any place, anytime. This is particularly useful to students who are unable to attend lectures due to work commitments, illness and distance barriers. The online lectures can also be used to review the course for exam preparations as well as for students to seek clarification if they had fallen behind in the lecture which may be particularly true for students who come from a non-English speaking background. The biggest advantage though, with online lecturing media, is its ability for universities to break down institutional and global barriers by making their lectures available to both students and the general public. As the majority of today's youth are spending more time on the internet for entertainment purposes, it is a logical and natural progression that universities are providing "information they are looking for…in the places they are spending their time" [McGough, 2008]. For the purposes of this study, online media would include online audio with screen capture technologies (Lectopia) and online video technologies (YouTube, iTunes and UNSWTV, university branded online video channel).

A commonly used online audio tool for lecturing is Lectopia. Lectopia is an automated online delivery system used to record audio and visual material from lectures. Lectopia has been in use

since 1999 by its founding university, University of Western Australia, and is now used in over 50% of Australian universities, and three universities outside Australia. The recording options available include:

- audio only recording of the lecture
- audio recording of the lecture accompanied with screen capture. Screen capture option captures everything displayed on the computer screen during the scheduled recording time and presents the captured material, such as powerpoint slides, web sites etc, in-sync with the audio recording.

More recently, online video technologies have been introduced into the university curriculum with iTunes U and YouTube being used in universities since 2005 and 2007 respectively. YouTube is a free online video streaming service that allows anyone to view and share uploaded videos. iTunes U is the e-learning arm of iTunes, a free online streaming and download service that allows universities to set up their own iTunes U site where their students and/or the public can access audio files, video files and PDFs posted by the university. Materials posted on YouTube and iTunes U are made available to everyone, regardless of whether the user is a student of that university or not. However, iTunes U has a few advantages over YouTube. This includes iTunes U's ability to restrict access to students enrolled in a particular course at that university. Also, iTunes U is a facilitator of mobile learning as files can be downloaded onto computer or mobile devices for later viewing to let students study at their own pace anywhere anytime. The success of these online video technologies has seen it being accepted at many leading universities including Duke, Harvard, MIT, University of California, Yale, Stanford and Oxford to name a few.

For students to reap the claimed benefits from these online media technologies, it is vital that lecturers are accepting of these technologies. Hence, the focus of this study is to provide insight into the understanding of the factors that contributes to the acceptance of online media for university lecturing. As online channels are being adopted rapidly by universities worldwide, the understanding of why or why not lecturers are accepting of these new technologies is crucial to the success of this medium of education.

II. BACKGROUND

E-Learning

The rapid growth of the Internet in the last two decades has seen dramatic changes to the way teaching is conducted. With the growth of the Internet, a wealth of E-learning tools has been introduced to assist the traditional teaching method of face-to-face lectures and tutorials. Additionally, there is a reported increase in demand from university students for e-learning based courses [Volery and Lord, 2000]. In this study, e-learning refers to the use of online technologies to facilitate knowledge sharing [Rosenberg, 2001] and communication between student-to-instructor and student-to-student interaction [Liaw et al., 2007].

Many higher education institutions are expanding their investment in e-learning to enhance learning performance, while others are adopting e-learning practices so that they do not fall behind [Govindasamy, 2002; Cheung and Huang, 2005]. As a result, approximately 95% of higher education institutions are now utilising some method of e-learning [Pollack, 2003]. Common e-learning platforms include the use of course management systems such as WebCT and Blackboard, online discussion forums, podcasts and chat rooms.

Literature has focused on the benefits of the use of e-learning to assist traditional teaching. In particular, the major benefits is its potential to generate and motivate interest and interaction between students and lecturer/s in the course and its ability to provide students with a more active role through increased autonomy in the educational process [Claudia et al., 2004]. E-learning can help overcome barriers of time and place by allowing students greater flexibility in choosing their preferred study hours and place of study whether it is at home, work or at university [Lee et al., 2005]. In particular, e-learning would greatly suit students with full-time work commitments who need to fit study around their work hours. The use of e-learning technologies can help both students and instructors achieve higher computer self-efficacy [Piccoli et al., 2001] and the e-learning system can also help facilitate a more collaborative learning process where there is greater flow of communication between lecturers and students [Keller and Cernerud, 2002].

However, E-learning also has its disadvantages. These include [Burgess, 2003] isolation due to the limited contact with lecturers, difficulty in understanding the e-learning technology and increased lead-time required for feedback from lecturers. The e-learning system must be well planned [Mallak, 2001] and supported [Selim, 2007]. The successful use of an e-learning initiative requires an understanding of both students' and instructors' attitudes towards its uses [Mahdizadeh et al., 2008]. Importantly, a number of studies have highlighted that the greatest barrier to a successful e-learning program is issues concerning the instructor [Berge et al., 2002; Albirini, 2006]. Prior studies have stated that lecturers' attitude, their IT competency and their teaching style are major factors affecting their acceptance of e-learning and their future behaviour regarding usage [Koohang, 1989; Webster and Hackley, 1997]. It is important that instructors have good understanding of IT and is capable of performing basic troubleshooting tasks [Selim, 2007].

Technology Acceptance Model (TAM)

Since its introduction by Davis [1989], the TAM model has been used extensively in studies predicting acceptance of ICT technologies including online shopping, online banking and software applications in different organisational settings [Selim, 2003]. In the TAM model, 'perceived usefulness' and 'perceived ease of use' are hypothesised to be the major determinants of the acceptance of a technology [Davis, 1989; Selim, 2003].

Perceived Usefulness

In TAM, perceived usefulness is defined as "the extent to which a person believes that using a particular technology will enhance his or her job performance" [Davis, 1989]. From an e-learning perspective, perceived usefulness will be defined as the extent to which a lecturer believes that online media will provide both students and lecturers access to useful information, and the ability of this technology to help broaden and enrich the students' learning experience by serving as a more convenient learning platform that can be accessed regardless of place or time differences. Improvement in student performance will be reflected in the lecturer's performance from both student grades and student feedback. Existing IS literature has provided extensive support of the significant relationship between perceived usefulness and usage intention [Davis et al., 1992; Lee et al., 2005; Scott and Walczak, 2009; Lu et al., 2009; Zhang et al., 2008; Van der Heijden, 2003; Liu et al., 2009; Saeed and Yang, 2008; Lua et al., 2005; Wang et al., 2006; Yi and Hwang, 2003; Yi et al., 2006; Lee et al., 2007]. It is expected that lecturers will use online media if they find that these technologies are useful in the completion of their task, thus:

H1: Perceived usefulness will positively influence the lecturer's intention to use online lecturing

Perceived Ease of Use

In TAM, PEOU is defined as "the degree to which a person believes that using the system will be free from effort" [Davis, 1989]. In this study, PEOU is defined as the extent that a lecturer believes online lecturing requires little or no effort. This refers to how easy the lecturer believes it is to operate these online media channels to record and publish the lecture recordings.

Many studies have provided strong empirical support for the relationship of perceived ease of use on usage intention, either directly or indirectly through its effect on perceived usefulness [Yuen and Ma, 2008; Zhang et al., 2008; Yu et al., 2005; Saeed and Yang, 2008; Lua et al., 2005; Wang et al., 2006; Yi and Hwang, 2003; Lee et al., 2007]. Some studies have also found that PEOU is a better predictor of intention to use than PU [Lowry, 2002 in Lua et al., 2005]. It is hypothesised:

H2: PEOU will positively influence the lecturer's intention to use online lecturing

H3**:** PEOU will positively influence the PU of online lecturing

Given that many of the lecturers in this study environment do not currently use online media technologies for their teaching; behavioural intention instead of actual usage has been chosen as the dependent variable in this study. Fichman [1992, in Yi et al., 2006] found that by using intention instead of actual usage, the problem of retrospective analysis will be reduced.

Subjective Norms

According to Ajzen & Fishbein [1980], subjective norms are the beliefs held by the social groups that an individual belongs to and which would affect the individual's intention to use. In this study, subjective norms are defined as the extent that a lecturer believes that people within his/her own social group/s would recommend the use of online lecturing. Many studies have shown that an individuals are heavily influenced by their immediate social surroundings. Yuen and Ma [2008] argue that the introduction of an e-learning platform is a combined effort of both the instructor and the organization. Previous studies have provided empirical support for the relationship of subjective norms on perceived usefulness [Lua et al., 2005; Dickinger et al., 2008], perceived enjoyment (Dickinger et al. 2008) and intention to use [Lu et al., 2009; Yu et al., 2005; Yi et al., 2006; Hsu and Lu, 2004]. In this study, it is hypothesised:

H4: Subjective norms will positively influence the lecturer's PU of online lecturing

H5: Subjective norms will positively influence the lecturer's PE of online video media.

H6: Subjective norms will positively influence the lecturer's intention to use of online lecturing

Self Efficacy

Self-efficacy is the belief "in one's capabilities to organize and execute the courses of action required to produce given attainments" [Bandura 1997]. Compeau and Higgins [1995] defined self

efficacy as an individual judgment of one's capability to use a computer. In this study, self efficacy is defined as the lecturer's assessment of his/her capabilities and understanding in using online media. For lecturers without any formal training or education in technology, online lecturing may not be completely intuitive. It is believed that a lecturer will have a higher tendency to use online lecturing if he/ she perceive him/herself as competent. Gressard and Loyd [1985] found that a teacher's confidence in using computers can influence his/her implementation of that technology in the classroom. Self efficacy was found to have a positive relationship on PEOU of PDAs [Scott and Walczak, 2009], mobile services [Wang et al., 2006] and web management systems [Yi and Hwang, 2003]. It is believed that:

H7: Self efficacy will positively influence PEOU of online lecturing

Organisational Support

If an organisation has financial resources available to invest in the required technologies, then this would positively affect the perceived usefulness of a technology [Wang et al., 2006]. Mathieson et al. [2001, in Wang et al., 2006] found that the availability of resources has a significant influence on acceptance. Scott and Walczak [2009] found that organisational support has a positive relationship on self efficacy of users in mobile services. Ngai et al. [2007] found the availability of technical support provides significant support for perceived usefulness and perceived ease of use of WebCT. It is expected that the availability of adequate organisational support would help to facilitate technology acceptance indirectly through its effects on the user's self efficacy, PU and PEOU. Thus, it is hypothesised that:

H8: Organisational support will positively influence self efficacy

H9: The availability of organisational support will positively influence the lecturer's PU of online lecturing

H10: The availability of organisational support will positively influence the lecturer's PEOU of online lecturing

Perceived Enjoyment

To provide better explanation for IT acceptance, Davis et al. (1992) introduced the construct of perceived enjoyment as a measure for intrinsic motivation. Perceived enjoyment is defined as the ''the extent to which the activity of using the technology is perceived to be enjoyable in its own right, apart from any performance consequences that may be anticipated''(Davis et al. 1992). In this study, perceived enjoyment refers to the extent to which the lecturers find the use of online video lecturing to be enjoyable in its own right,

Many studies have found that users' are more accepting of a technology if they enjoy using that technology. Perceived enjoyment was found to be a good predictor of behavioural intention (Davis et al 1992; Yu et al. 2005; Dickinger et al. 2008; Lee et al. 2007; Zhang et al. 2008)). Consistent with prior studies, it is believed that there is a positive relationship between perceived enjoyment and behavioral intention:

H11: PE will positively influence the lecturer's intention to use online video media.

According to self efficacy theory, if an individual has a higher degree of self efficacy, then he/she would find the technology easy to use and is more likely to enjoy using it (Bandura 1977; Lee et al 2005). Thus, it is expected that if the technology is easy to use, the more enjoyable the individual would be in using that technology. Empirical support has been found for this relationship in previous studies (Lee et al. 2005; Lee et al. 2007; Van der Heijden 2003). It is expected that:

H12: PEOU will positively influence the lecturer's PE of online video media.

Media Richness Theory

Media Richness Theory (MRT) developed by Daft and Lengel [1986] states that the communication efficiency between people is affected by the fitness of the media and the characteristics of the communication task. According to Daft and Lengel [1986], media richness is based on the criteria of the medium's capacity to:

(1) provide immediate feedback,

(2) transmit multiple cues,

(3) convey language variety of verbal and non-verbal information; and

(4) personalise the message to convey the emotions and feelings of the message sender

Based on the above set of criteria, studies have found that face-to-face communication is considered to be the richest communication medium due to its capacity to provide instantaneous feedback, transmit cues of body language, facial expressions and changes in voice tones as well as use of formal and colloquial languages and conveying emotions. This is followed by telephone, email, and written documents [Daft et al., 1986; Trevino et al., 1990]. As the online media in this current study is essentially a one-way communication channel for lecturers to deliver the lecture content to students, the feedback immediacy criterion will not apply for the online media in this present study.

Based on the other three criteria of the media richness concept (multiple cues, language variety and personal focus), online video lecturing is considered a rich communication medium. Online video lecturing has a high capacity to transmit multiple cues by conveying the lecturer's body language, facial expressions and tone of voice. The video can transmit both verbal and non-verbal information such as signs and symbols to communicate a wide range of meanings. Online video media also allows the lecturer to convey information about their emotional state and feelings, thus adding a personal focus to the message.

If a communication medium is rich, there will be less uncertainty and ambiguity associated with the task and hence their will be less effort required to use it which may result in the user experiencing more satisfaction in using it [Lee et al., 2007]. Lim and Benbasat [2000] have also found that a medium that allows for sending and receiving of multiple cues to be perceived as useful. Thus, from the perceived media richness of online video mediums, it is hypothesised that:

H13: PMR has a positive impact on PU of using online video media

H14: PMR has a positive impact on PEOU of using online video media

H15: PMR has a positive impact on PE of using online video media

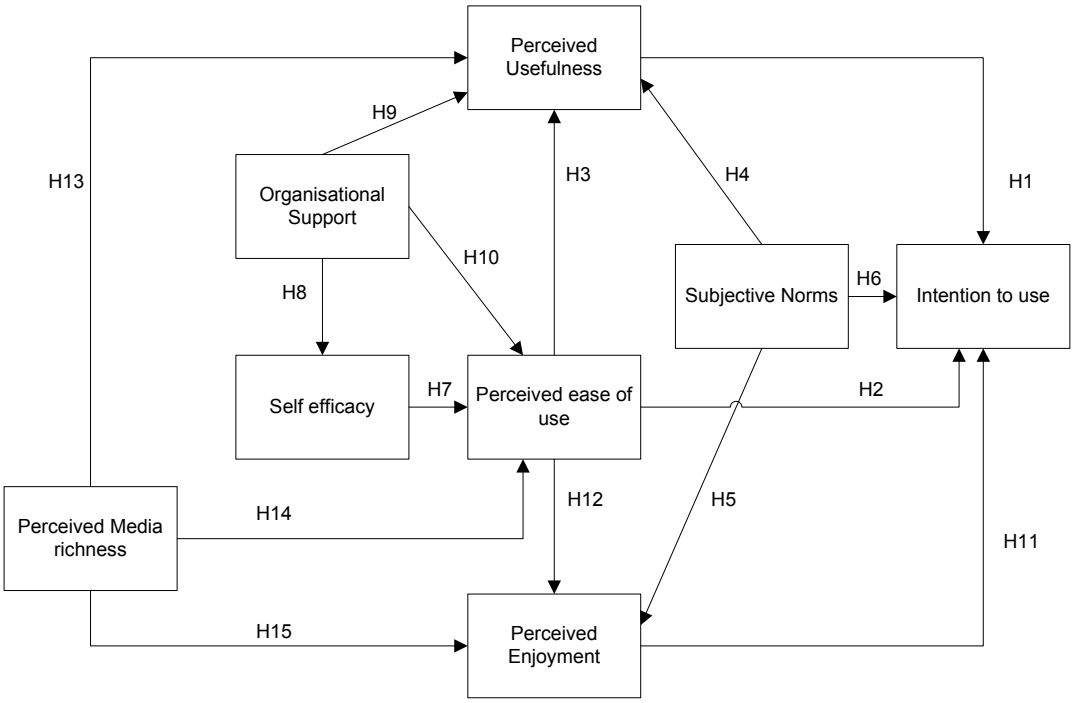

Figure 1: The research model

III. RESEARCH METHODOLOGY

The full study will make use of a mixed method approach using qualitative interviews and quantitative methods of questionnaire. Partial Least Squares will be used for data analysis of the survey, whilst the interviews will be further analyzed through context analysis. For the main study, an online questionnaire will be used. However to increase survey responses, paper-based questionnaire will also be issued. To ensure validity and reliability of the questionnaire, an online pilot study will be conducted to find any issues that may exist with the understandability and clarity of the questionnaire items. This pilot study will also be used to evaluate the effectiveness of the items (questions) used to measure the constructs. This paper reports on the qualitative interviews carried out to determine the most salient factors affecting intention to use and the results from these interviews will be used to verify and refine the conceptual model presented in Figure 1.

Interview data has been collected from The University of New South Wales (UNSW). UNSW was chosen as it was the first Australian university to launch a YouTube channel and the current adoption of this technology has been minimal. 10 lecturers were interviewed for this study, chosen through convenience sampling based on factors such as participant accessibility, the

faculty which he/she lectures in, and their level of lecturing experience (e.g. professor, senior lecturer, junior lecturer, contract lecturer, etc.).

IV. RESULTS

Content analysis was performed to analyse the interview findings. The process of content analysis involves the breaking down of the data collected from the interviews into manageable categories or themes. The breaking down of the interview findings into meaningful and relevant groupings made analysis and interpretation of the data easier to analyse. The results were then analysed using conceptual analysis. In conceptual analysis, a concept is chosen for examination and the number of its occurrences within the interviews is recorded. Regarding intention to use, 3 main themes were identified; these consisted of benefits to students, barriers to acceptance and concerns of use (Table 1).

Table 1 – Summary of Themes

Themes and sub-themes	No. of respondents (total = 10)
Benefits to the student	
Student convenience	8
Increased media richness	7
Revision purposes	4
Barriers to acceptance	
Additional workload	7
Suitability of the course for online delivery	8
Effect on students performance questionable	5
Increased self consciousness	4
Concerns about use	
Limited organizational support	9
Decreased student attendance in face to face lectures	7
Student expectations	3

Benefits to students

The majority of lecturers identified that online video technologies do present benefits to students in the form of increased student convenience, using online videos for revision purposes and

increased media richness in comparison to online audio technologies (podcasting and streaming audio).

Student convenience

8 of the 10 lecturers reported that online video lecturing would be able to benefit students through increased student convenience by providing students with more options in how they wish to learn. If a student had missed a lecture, the student would easily be able to catch up on missed content through online video. This technology would also suit the large numbers of today's students with working commitments, providing flexibility to study around work schedules. The reduced necessity for students to be on campus would provide increased convenience for distance students.

Media richness

Comparisons with podcasting revealed that 7 of the 10 lecturers had the view that online video would be more media rich than podcasting itself as there is more information flowing to students as they can see and hear the lecture compared with receiving lecture notes and hearing the audio. The online video lecture would present visual cues and would be well suited to visual learners and aid student learning. An alternative to online video lecturing was also suggested by 2 of the 10 lecturers. The alternative, audio and screen capture, is a form of online video technology. Instead of seeing a video of the lecturer talking, the student would be able to see the slide that the lecturer is talking about during the lecture. This method was considered more media rich by 2 of the lecturers than the "talking heads" method of online video lecturing, whilst still being able to provide visual cues. However, the problems of reduced feedback immediacy and/or no feedback loop were identified.

Revision purposes

The ability for students to revise lecture content using these videos was recognized by 4 of the 10 lecturers. Using these videos, students would be able to review materials of key concepts and technical procedures on how to do things, revise for an exam and revisit information that they may have missed during the face-to-face lecture. As indicated by one lecturer, the benefit of being able to revise and review the lecture content may be particularly useful to international students:

> *…may be beneficial for international students especially if English isn't their first language, as they [international students] may fall behind in (face to face) lectures. In this instance, they can re-watch [the] online video lectures at their own pace. This also works vice versa where the lecturer may have a heavy accent and students can not keep up with the lecture due to the lecturer's accent.*

Barriers to acceptance

There were a couple of barriers identified that discouraged lecturers from accepting online video lecturing [Dick, 2005]. These include additional workload, suitability of the course for online lecturing, effect on students performance was questionable and self consciousness.

Additional workload/time required to learn new technology

The use of online video lecturing would result in increased workload for the lecturer in setting up equipment including cameras and microphones as well as spending time to edit and publish the video onto the internet. As one lecturer puts it:

> *Lecture time is already short enough without having to fiddle with things*

Increased workload and the time required to learn the new technology was identified as a key barrier to accepting online video lecturing by 7 lecturers and can add to teacher stress. As stated by lecturers:

> *"Online video technologies is a distraction away from teaching as the lecturer has an extra thing to think about"*

> *"It the recording and uploading of online video lectures is an automated process [like podcasting] with someone else dealing with the technology, then I will accept it. Otherwise, I need to think twice"*

Most believe that they will be able to learn these technologies easily, but are unwilling to use these technologies if it adds to their workload. Thus the effect from increased workload is greater than one's perceived self efficacy.

Suitability of the course for online lecturing

The suitability of online video lecturing was raised on 2 levels – the first being whether online video lecturing was suitable for lectures which contain interactive components and secondly, the relevancy and appropriateness of the lecture video being made available to the general public.

The suitability of online video lecturing for interactive courses was seen as a barrier by 8 of the 10 lecturers. As some courses emphasizes interaction through methods such as question and answer sessions and group activities in the lecture, interactive work would be hard to build into lectures if not enough students are attending the face to face (F2F) lecture due to decreased student attendance in the face to face lectures as a result of student opting to view online videos as a substitute to attending F2F lecture. Thus, this would result in reduced lecture activity involvement. As put by one lecturer:

> *There will be less student-teacher interaction – this is a problem for courses that requires more interactivity. For example, I get my students to answer questions on the whiteboard*

Additionally, 2 of the 10 lecturers also addressed that they like to move around the lecture theatre to better engage their students. If online video lecturing was used, movement would be restricted as lecturers have to be within the view of the camera.

In addition, 3 of the 10 lecturers questioned the suitability of providing the course to external users that are not currently enrolled students. Of these 3 lecturers, 2 of them believe that not all courses are geared for external education; it is not appropriate for the public to see the lecture content without having regard to the background knowledge in that domain. Hence, videos in these courses should be restricted to enrolled students of the course:

> *I'm not too sure whether you want the lectures made available to the public domain. I do not think it is appropriate for the public to see the videos and cannot see the need for them to see the videos.*

One lecturer stated the reason why online videos should not be made available to the entire general public because

> *I do not think that making vodcasts available to everyone would be a good idea – students that pay should get the materials, otherwise if it available to all, it means that the student is paying for just the piece of paper (degree)...I prefer only students that are enrolled in the course to receive access to the online videos. If videos aren't password protected and restricted to currently enrolled students, then no, I do not intend to use it.*

A differing viewpoint:

> *Universities are here to educate people, we're not a business. If you can educate people, and you can educate like a thousand people instead of 10 then that's the point! Surely, that's what uni is about. I don't think knowledge is to be hoarded and handed out and charge money. People come here because they want to come here. People want to have a degree. And I don't think it'll stop people wanting to come here…I think it'll just build up our trademark. Uni has a role in educating and improving society. And they're only getting the lectures anyways, they aren't getting the tutorials and exams and other materials. I strongly disagree with the idea of hoarding knowledge.*

Effect on students performance

Although all 10 lecturers interviewed recognized that online video lecturing is beneficial to students in one way or another (see above), 5 of the 10 lecturers did question whether the value added from these technologies is worth the time and money spent on it. These lecturers want to know that it adds value to student performance, but this is hard to measure. Without evidence, some lecturers are not willing to embrace the technology. As put by 2 lecturers:

> *"I have no objection to its use, but I need evidence that the use of online video technologies is beneficial to students...[otherwise] have no incentive or belief that the use would make a difference"*

> *"How much can students learn from simply watching a video in comparison to F2F lectures?"*

Self consciousness

With the knowledge that you will be filmed, 4 of the 10 lecturers reported that they would be more self conscious and uncomfortable during the lecture. Increased self consciousness was highlighted in the areas of how you speak, what you say and what you wear. The general fear was one of being exposed if you're not good at your teaching:

> *"putting it [the video] online sort of exposes that. So if you're doing a bad job at teaching, it shows".*

> *"It'll be more stressful as you need to be more methodic and organized and you're more self conscious as you are being recorded"*

> *"…much more nervous and conscious…fear of making mistakes coz you're really visible when you make a mistake"*

Concerns about use

There were a few concerns about the use of online video technologies; these included limited organization support, decrease student attendance in face to face lectures and meeting student expectations.

Limited organizational support

The availability of support in the organization is a key factor to the success of technology acceptance. However, as reported by 9 of the 10 lecturers, the university does not have adequate support for their lecturers on a number of levels.

The lecturers were unaware of university protocols regarding usage of online video channels. The increase in reliance on technology would require an increase in helpdesk staff, especially as the current view is that the helpdesk is too slow in responding. Given that students need to be able to view the lectures before attending their tutorials, timeliness of IT help in rectifying problems is important.

Pedagogical support is also required so that lecturers know how to combine online video lecturing into their course. There is a need to analyze how online video lectures can affect student learning and alter the course respectively. One lecturer has highlighted that the majority that would accept online video lecturing are the "teachers", but:

> *"The Vice Chancellor believes UNSW is a research intensive university. Teaching doesn't add much value. Hence, doesn't allow time for lecturers to create innovative lectures for students"*
>
> *"I do not think that UNSW would be able to provide the level of support that is required based on past experience"*

Decreased student attendance in face to face lectures

As addressed by 7 of the 10 lecturers, online video lecturing may discourage students from attending lectures as students may choose to view the online lecture as a substitute for attending the face to face lecture. One particular concern with this is that students would be missing out on the interactive aspects of the lecture and with decreasing student numbers, lecturers may have difficulties in building interactive work into the lectures if not enough students are attending. In the words of one lecturer:

> *People might not come to lectures…But why would I want to make them turn up to my lectures if they can access them from home…They shouldn't be there cause you're forcing them to be there…In the past, if people didn't turn up to lectures, we get this impression that that means the lecture is bad, but that's not bad, it's just a symptom that we're doing something wrong. But now it's different. If videos are there, it may either mean that the lecture is bad or they prefer to watch the video online. I think that once we get use to this change, we would not find that people not turning up is bad. But it is easier to teach when there are people there, you get a vibe.*

Student expectations

Interestingly, the majority (7of 10 lecturers) believed that their intention to use would not be affected by subjective norms of their university and colleagues within the same school. Intention

to use was more related to the value that the lecturer sees from using online video lecturing in the course.

However, if intention to use was affected by others, it was more from students (3 of the 10 lecturers identifying that pressure may come from students who expect lecturers to use these technologies). This may particularly be the case where other lecturers are using these technologies and the student would question why a particular lecturer isn't doing the same. Indirectly speaking, lecturers within the same school who are using online lecturing may drive student expectations and standards. The pressure to use the online lecturing technology is therefore, not coming from colleagues, but from students expectations that since a colleague of the lecturer is using the technology, so should the lecturer.

V. REFINED RESEARCH MODEL

Using the findings from these interviews, 6 of the 7 variables in the conceptual model was found to have an effect on intention to use online video technologies: Perceived usefulness, perceived ease of use, subjective norms, organizational support, self efficacy and perceived media richness. Lecturers stated that they do not believe that online lecturing would be enjoyable. Thus, perceived enjoyment is believed to be insignificant in this study and removed from the model. In addition, content analysis of the data also highlighted other external factors that affect intention to use. These include lecturing style and teacher stress (mainly in the form of stress contributed from additional workload) which are introduced to the refined model below.

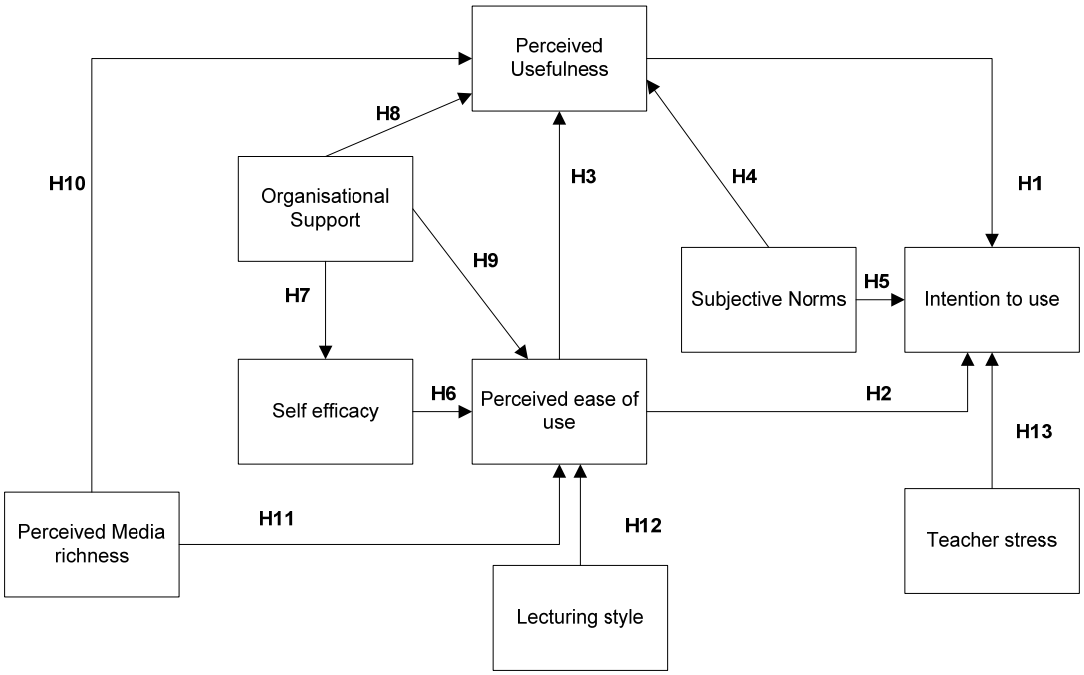

Figure 2: Refined research model

Lecturing Styles

Lecturing style refers to the approach and techniques used by the lecturer in their teaching [Fardon, 2003]. In this study, lecturing styles would refer to the simplistic classification of teacher-centred and student-centred lecturing styles.

Traditionally, teaching has often been carried out in a teacher-centred lecturing (TCL) style where the emphasis has been on the teacher having full control of the classroom and the coverage of clearly structured and content driven lectures in a didactic fashion [Chang, 2007; Lea et al., 2003]. TCL refers to a passive lecturing style where the purpose of the lecture is to disseminate predetermined content in the form of concepts and worked examples in a scripted approach [Saroyan and Snell, 1997].

Alternatively, in student centred lecturing (SCL) the lecture becomes an interactive experience between the lecturer and the students and uses a wide range of tools with clearly articulated objectives, limited content, handouts, and student activities composing of group discussions and questions and answer sessions during the lecture to engage students in activities that will assist their learning [Saroyan and Snell, 1997; Chang, 2007]. It is believed that lecturers that are student-centred would find that online lecturing would restrict their lecturing style and thus, it is unlikely that they will find that online lecturing easy to use. Thus, it is hypothesised that:

Teacher centred lecturing styles will positively influence the lecturer's PEOU of online lecturing.

Teacher Stress

Teacher stress is defined as the negative emotions that results in decreased self esteem or poor well being experienced by the teacher due to their work situation [Kyriacou, 2001]. The main sources of teacher stress includes teaching students who lack motivation, coping with change, being evaluated by others, administration and management, poor working conditions and colleagues ['Travers and Cooper, 1996; Benmansour, 1998; Pithers and Soden, 1998' in Kyriacou, 2001]. In King's [1973] study, two thirds of the 303 lecturers surveyed, reported feelings of self doubt and anxiousness with reasons including the problem of maintaining student interest in the lecture, length and delivery of the lecture and structuring of the lecture content [Brunhs and Thomsen, 2001]. The change brought upon by implementation of new systems can result in teacher stress and reluctance to accept the new technology. New and difficult technology was found to be a source of work-related stress in Bradley's [1992 in Russell, 1997] study. Kyriacou [2001] also found that the negative impact of change can result in teacher stress and resistance to change. Thus, it is hypothesised that:

Teacher stress will negatively influence the lecturer's intention to use online lecturing.

VI. LIMITATIONS AND CONTRIBUTION

The first limitation is the generalisability of the current study as all data will be collected from one university (UNSW); hence, the results will be difficult to generalise to other higher education institutions as each university has different preparedness in accepting e-learning initiatives. Other limitations include the possibility that some relevant constructs are not included and response bias.

Nevertheless, this study presents theoretical and practical contributions to researchers and educational organisations.

This study contributes to literature through its identification of key contributing factors surrounding lecturer's acceptance of online lecturing. The use of online audio and online video media for lecturing purposes is a relatively new technological initiative which is still in the experimental stages. Furthermore, findings from this study can be used by educational organisations to help gauge whether the use of online lecturing would be a success within their own learning environment and introduce initiatives to help reduce the negative factors/perceptions.

The next step of this research is to pilot the survey instrument, followed by the main survey. As the number of lecturers selected for interview was quite small (n=10), the elimination of constructs can not be justified based on these interview findings alone. Hence, although perceived enjoyment construct was removed for the conceptual model, questions for perceived enjoyment will be retained in the pilot survey. Pilot survey results would be analysed using PLS to analyse divergent and convergent validity and used to find significant paths between the constructs.

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> *Editor's Note:* The following reference list contains hyperlinks to World Wide Web pages. Readers who have the ability to access the Web directly from their word processor or are reading the paper on the Web, can gain direct access to these linked references. Readers are warned, however, that
> 1. these links existed as of the date of publication but are not guaranteed to be working thereafter.
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APPENDIX - INTERVIEW

The interview will examine aspects of e-learning and is divided into four parts. The first part is related to demographic details. Second part looks at the current e-learning tools used in the teaching process. Third part looks at the individual perception of e-learning technologies, organisational support, perceived ease of use (PEOU), perceived usefulness (PU), Subjective norms, perceived media richness (PMR) and perceived enjoyment (PE). Finally, the last part looks at intention to use and barriers to adopting e-learning technologies in teaching process.

1. DEMOGRAPHIC DETAILS – including computer self efficacy

- What is your staff job title?
- What is your age/age bracket?
- What qualifications do you have?
- What subjects do you currently teach?
- Describe your teaching experience? Do you consider yourself more as a researcher or teacher?
- How would you describe your computer literacy rate?
- Do you know what iTunes and YouTube is? Do you actively use these technologies?

2. Questions looking at the current e-learning tools used in the teaching process

- What is your current knowledge in e-learning technologies?
- What elearning tools are you currently using in your teaching process?
- Are you currently using vodcasting in your teacher process?
- Are you aware of the existence of UNSW's vodcasting channels?

3. Questions looking at the individual perception of e-learning technologies, organisational support, PEOU, PU, Subjective norms, PMR and PE

- Do you think there is a need for vodcasting to complement current teaching methods?
    - (in relation to the response provided in the question above) So, in your opinion, you think that vodcasting would be useful/not useful?
- Do you think the introduction of these vodcasting tools would make the lecturing experience more enjoyable?
- How would you rate vodcasting's ability to provide:
    - capacity for immediate feedback
    - capacity to transmit multiple cues,
    - language variety; and
    - personal focus on the recipient (i.e. the individual watching the video)
- Do you think that vodcasting technologies would be easy to use?
    - İs this affected by your own computer ability and the availability of support
- Do you think that UNSW would be able to provide the level of organisational support you would require? Why or why not?
    - Were you aware that UNSW has Learning and Teaching team that can provide you with support in podcasting, broadcasting and streaming media help?
- If UNSW encourages but does not mandate their teaching staff to use vodcasting in their lecturing, would this impact on your decision of whether to adopt or not adopt vodcasting?
- If your school and colleagues encourages but does not mandate their teaching staff to use vodcasting in their lecturing, would this impact on your decision of whether to adopt or not adopt vodcasting?

4. Questions - Intention to use/barriers to adopting e-learning technologies in teaching process.

- Do you intend to use vodcasting in the future? What are the factors that helped you arrive at this decision (i.e. what factors encouraged you to accept vodcasting, or what factors are preventing you from accepting vodcasting?)
- What barriers are stopping you from adopting vodcasting technologies in your teaching process?
    - From the barriers you have highlighted, rank them from most critical to least critical.

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