



## Can one size fit all? Using web-based audiographics to support more flexible delivery and learning

Stephen Rowe and Allan Ellis

School of Commerce and Management

Southern Cross University, Lismore Campus, NSW

As educational technologies evolve and new technologies become available they create opportunities and challenges for university teaching staff. Once potential improvements are identified they often need to be implemented incrementally and carefully evaluated. The separate and specific benefits to teaching staff, enrolled students and the institution need to be recognised. Audiographics is an established teaching technology that has evolved with the spread of the Internet and improvements in compression technologies such as particular VoIP. This case study describes the central role of a current web-based audiographic product (Elluminate Live!) in the evolving online structure for an undergraduate auditing course in a degree program at a regional Australian university. The ability for staff and students to engage with the rich suite of synchronous teaching and learning tools as well as the ability to record session interaction for later playback are presented as key benefits for improved flexibility in staff teaching and access to student learning opportunities.

Keywords: teaching, leaning, pedagogy, audiographics, web-based audiographics, synchronous, asynchronous

### Introduction

This paper presents the evolution of integrating web-based audiographics (WBA) as a central technology for the delivery of an undergraduate auditing course at a regional Australian university. The need to deliver to an increasing diverse cohort of students across three campuses, distance, domestic and international partners is discussed as a key impetus for the adoption of WBA. In addition, the potential for greater flexibility to staff for delivery and students for learning was quickly recognised and added to that impetus. The diverse student cohort offered the opportunity to use WBA to broadcast and record face-to-face sessions. Students studying at distance or guest lecturers can be invited to join and participate in the face-to-face session on-line. The recordings mean that students who joined could review the session and students who were not able to join the session at the time it was broadcast can view the session at a later time convenient to them. Descriptive statistics reflecting attendance patterns and recording downloads are offered. The WBA product used by the university under an unlimited seat license agreement is Elluminate Live!® (2008). It is fully integrated into a Blackboard® (2008) Learning Management System (LMS).

### Literature and technology innovations

Rowe & Ellis (2007) explain how current versions of WBA open up accessibility by being cross platform and fully functional even over dial-up connections. This means that features from VoIP through to application-sharing is available to any user, anywhere with a computer and an Internet connection and is not constrained by access to institutional teaching and learning infrastructure. The VoIP features enable more natural communication from within the single program, all synchronised with the suite of tools (Ice, et.al., 2007). This removes the need for a dedicated network of phone connections between users and the limited number of connections allowed by earlier products. Further, the ability of current WBA to stream and buffer data means that the disconnection and loss of data/information in earlier versions is far less likely. This feature of the WBA allows a very similar experience for all users, irrespective of their connection speed. High speed broadband is not essential.

The ability to record a session is another very powerful feature not available in earlier WBA which had no built in recording facilities or cheap easily accessed storage options. The ability to record a session, complete with voice, slides, whiteboard activity and participant involvement effectively creates an asynchronous version for those unable to attend the session, or those wishing to review the session at a time more suitable to them. The compression capabilities of the recordings and the decreasing cost of on

and offline memory means this is now a very viable and affordable means of making learning material accessible (Rowe & Ellis, 2008). As an example, the average file size for a 50 minute recording has been less than 4MB. The value of this to students is illustrated by the continuing growth in downloads of recorded sessions. The 13,000 recorded session downloads during all of 2007 was matched in the first 6 months of 2008.

Audiographics emerged in the early 1990s but largely disappeared as the Web became more available (the Internet moved from institutional to private and commercial use) and carried more educational content, the resources that had previously been put into lesson planning and delivery were replaced by students searching and interacting with Web resources and directly with each other. This change reinvigorated calls for a move away from a teacher centred to a student centred environment with the teacher losing some degree of control (Barr & Tagg, 1995), and has seen Audiographics evolve to become WBA.

Calls for alternative learning environments to energise teaching and promote the value of more student-centred approaches are not new (for example, Andresen, 1984; Shulman, 1987; Palmer, 1993; Cunningham, 1999; Hanno, 1999; Wilson, 1999; Shulman, 2002;). No longer is the challenge to learn about new tools for learning and teaching. The discussion has moved beyond what is possible to “how to do it”. When used in conjunction with LMS, the synchronous and asynchronous features of current WBA provide the means to fulfil the purposes of the learning paradigm proposed by Barr & Tagg (1995, 16): “... produce learning, elicit student discovery and construction of knowledge, create powerful learning environments, improve the quality of learning and achieve success for diverse students”.

Recent research on this challenge has pointed to a number of issues indicating a level of success in addressing the calls above, especially from a student perspective. Students show strong appreciation for the flexibility and convenience offered by recordings in an increasing variety of formats (Lane, 2006; Lee, Chan & McLouglin, 2006; Williams & Fardon, 2007). Like many other aspects of education, the use of recordings is not new (for example, Bligh, 1972; Dekkers, 1990; Phillips 1991; Laurillard, 1993 and Biggs, 2003). Current research reinforces what has been known for some time (see for example Dekkers & Cuskelly, 1990) about the reasons students offer for needing and appreciating the flexibility and convenience of recording of classes. These include: backup for when they are not able to attend classes for such reasons as illness, work and family commitments, travel constraints, disabilities, an additional study tool for review and revision of content and comprehension of complex concepts, study at their own pace, manage timetable clashes, and minimise language barriers (Williams & Fardon, 2005; McElroy & Blount, 2006; Phillips, et.al., 2007; Gosper, et.al., 2007; McNeill, et.al., 2007 and Chang, 2007).

De Corte (2000) highlighted that the beliefs, attitudes and mentality of many staff are very slow to shift. Recent research reports progress toward and barriers to addressing this shift (Turoff, 2006; Swan, 2007; and Hiltz, et.al., 2007). Phillips, et.al. (2007) highlight some of the barriers for staff perceptions that persist, while McLouglin & Lee (2008) suggest that staff are responding to challenges to explore new approaches of teaching and learning to offer greater autonomy and connectivity allowing learners to interact with peers, experts, and the wider community enabling reflective, self-directed learning. Rowe & Ellis (2007) describe how the range of tools in WBA allow everyday tasks to be done online with a minimum of training by staff. In fact, some of the capabilities actually extend what is now possible in a physical classroom with far fewer resources. Elsewhere they describe an additional benefit in all this, being that students can be effectively taught at dispersed locations as a single cohort, all able to ‘attend’ and participate in activities simultaneously or review the sessions at times that suit them; in other words, even the divide between asynchronous and synchronous contact is converging (Rowe & Ellis, 2007a). While space does not permit the discussion of learning assessment used in this course, the evolution of this convergence is one of the issues addressed in this case study.

## **Origins of the WBA delivery approach**

The evolution of the WBA delivery approach described has been in response to a number of factors over the last decade: changes in the student cohort, the modes and places of delivery and the finally a willingness to utilise newly available technologies. Each factor is now briefly described.

### **Changes in student cohort, modes and places of delivery**

The period of evolution described in this paper is 1995 to 2008, with the most significant developments occurring in the last 3 years with the adoption of WBA by the university. ACC00130 Auditing is a required course of the professionally accredited three year undergraduate Bachelor of Business and

Bachelor of Accounting programs. It has generally been offered in semester one of the final year of the degree, though from 2001 to 2005 the degree structure saw the course delivered in semester two of second year. This is shown in the Teaching period(s) column of Figure 1.

Teaching period(s)	Year	Student enrolments								
		Total	Coffs	Lismore	External	Tweed	Hong Kong	Malaysia	PNG	Sydney
S1	1995	70	25	45						
S1	1996	56	16	40						
S1	1997	53	13	39	1					
S1	1998	61	14	20	27					
S1	1999	75	13	21	41					
S1	2000	83	12	13	58					
ss,S1,S2	2001	103		5	87	11				
ss,S2	2002	102	7	20	69	6				
ss, S2, AT1, AT3	2003	132	14	16	70	11	21			
ss, S2, AT1, AT2	2004	115	8	20	61	10	15	1		
ss, S2, AT1	2005	103	2	11	57	15	16		2	
ss, S1, AT1	2006	128		6	68	6	46		2	
ss, S1, AT1, AT2	2007	190	11	19	80	12	46		2	20
ss, S1, AT1, AT2	2008	182	6	17	52	11	84		7	5

**Figure 1: ACC00130 Auditing teaching periods and student enrolments by location 1995 to 2008**

Teaching periods: S = semester; ss = summer school; AT = Asian trimester.

Student enrolments: PNG = Papua New Guinea

The Student enrolments Total column in Figure 1 shows the steady growth in enrolments for the period from which three general incremental steps in enrolments can be discerned. For the period 1995 to 2000, the enrolments hovered in the 50-80 range; 2001 to 2006, the 100 to 130 range; and for 2007 to 2008 they jumped to the 180 to 190 range due largely to the contributions from the Hong Kong and Sydney international partner programs. The steady growth in the external proportion up until 2001/2 is clearly evident. The maintenance of that proportion in the subsequent periods and the recent impact of the international enrolments is equally evident. The point to bear in mind here is that the evolution has required coverage and support across a steadily increasing range of locations: prior to 1995, just a single location; 1995 to 1996 two locations increasing to three from 1997 to 2001 with the introduction of the external offering. 2002 brought four locations, increasing to five for 2003 to 2004 with the introduction of the Hong Kong offering. The PNG program saw this increase to six in 2005 to 2006 and the current iteration of seven began in 2007 with the Sydney partnership commencing.

Another impact not so readily obvious from Figure 1 relates to the Teaching period(s) column. This column indicates the course being offered up to four times across the seven locations. The effect is to turn the offerings across the seven locations into a labyrinth. More specifically, summer school is only offered externally; semester 1 at Coffs, Lismore, Tweed, Sydney, PNG and externally; Asian trimester 1 and 2 only in Hong Kong and does not align with the domestic semester dates. It is a small leap then to imagine the impact on the version of materials, assignments, examinations and so on that is required to be managed – the luxury of one course across seven locations for a single period is a dream by comparison!

This case study focuses on the External and On-campus cohorts. The initial iterations of the approach do not directly cater for the nuances in the international offerings created by teaching periods that do not align with domestic timetables and particular delivery arrangements for the international partners which differ from the domestic requirements. The potential for development of the approach for international cohorts is an unresolved challenge discussed as part of the conclusion.

### **A willingness to utilise newly available technologies**

This section of the paper presents the range of technologies available to support teaching and learning and the circumstances of their adoption prior to and during the development of the approach. The initial LMS features adopted quickly expanded from content delivery to completion of assessment tasks and has most recently been complemented by the adoption of WBA and certain social software tools to move beyond

textual interaction to leverage the VoIP features. The focus in the case study is on the role of WBA within the approach.

The initial external offering of ACC00130 Auditing (1997) involved a print-based model used by the university. The success in increasing enrolments is evident from the total and external student enrolments shown in Figure 1 and that growth reflects the pattern for the business and accounting degree programs more generally. The print-based model was supplemented with optional teleconferences (two) and a one day (6 hour) workshop, usually held on a weekend in a capital city, each semester.

By 2005/6 it had become apparent that the supplementary support offered by teletutorials and workshops was not effective and attendance by externals had dramatically declined. It was not unusual for sessions to be cancelled due to lack of enrolments, or run with low enrolments (less than 5). WBA were introduced in 2005 and it was quickly apparent how successful their use could be as a cost effective alternative support for externals (Rowe and Ellis, 2007). In addition, the ability to join from any location with an Internet connection and the recording feature offered potential to re-engineer the whole approach to delivery and support for student learning.

The growth in external enrolments had also resulted in tightening deadlines for materials preparation. In 2000/1, following a review of the degree structure, these tightening deadlines happened to coincide with the change of offering of ACC00130 Auditing from second year semester two back to third year semester one. As a matter of necessity rather than design, the feedback component of the updated printed study materials was stripped out and made available only online using the course site within the LMS. This allowed a longer lead time for the adequate preparation of the suggested feedback and the practice remains in place (Rowe, 2004). This move also led to significant changes in the approach to assessment. The improved student access and use of these resources provided considerable encouragement to explore the use of other tools within the LMS to extend available flexibility in what assessment tasks could be done and when they could be completed by students. It also became clear that the tools within the LMS allowed all students to attempt the same assessment tasks, thus presenting the potential to converge the assessment requirements for on-campus and external students. The tools explored were text based asynchronous discussion boards and synchronous chat rooms.

During 2007 there were two key developments. First, an unlimited seat license was obtained for the WBA and it was integrated into the LMS providing seamless access for students and session creation for individual staff. Second, it became possible to manipulate the WBA recordings so that two things became possible. First, strip voice only from the recording so that audio files could also be offered to students (for example in .mp3 format and podcast). Second, a version could be produced and supplied to students via the LMS or on CD-ROM that allowed a recording to be viewed without going online and loading the WBA – this stand alone version is called an ‘unplugged’ recording.

## **The 2006 course revision: Initial steps**

Figure 1 shows that there were only 6 on-campus enrolments at Lismore and Tweed campuses and none at Coffs for semester 1, 2006. One of the reasons for this was that the course offering was changed from semester 2 in 2005, back to semester 1 due to a review of the degree structures. It is worth looking at 2001 to see a similar drop in on-campus enrolments when a previous program review resulted in a change from semester 1 to semester 2.

The structure outlined to students at the beginning of the semester advised no weekly face-to-face lecture. This was replaced with a pre-recorded 50 minute lecture using WBA to explain and enliven the Powerpoint slides made available on the LMS. Weekly face-to-face contact was to be a three hour workshop in Lismore and repeated at Tweed, both broadcast using WBA so that remote participants had two options to join. The recordings would be available to all enrolled students. There was also to be an optional session using WBA for a guest lecture to be presented. By Week 2, it was apparent the technology available in the allocated rooms at Lismore and Tweed did not support the intended broadcast and recording of the sessions. There was no audio capture equipment that could be easily used with a laptop, nor cables to allow connection of external speakers in either room; additionally there was no reliable internet connection in one of the rooms. While none of these constraints were insurmountable, technical support was not readily available.

The following amendments were communicated to the students using the LMS. A content pre-recording schedule over the first six weeks of semester was provided. One lecture would be recorded each Friday morning and afternoon for the subsequent five weeks and students were invited to join the sessions – only

one student joined one of the 10 sessions. The face-to-face sessions would happen on campus as scheduled, but not be broadcast or recorded. Externals would be supported by three workshops (reviewing Topics 1-4, 5-8 and 9-12) using WBA in addition to the LMS. Two workshops were scheduled for Sunday afternoons to mirror the normal time they had been held face-to-face up to that point. The rationale was a lot less time and expense for those few who could attend and the potential for those who could not access the venue (usually Sydney) on a specific date, some alternatives. A final revision workshop using WBA, available to all students, evolved into two – one in the evening and another in the afternoon, but both also on a Sunday, on the two weekends preceding the final examination. A planned optional guest lecture session was cancelled due to an inability to resolve a suitable time for the potential offshore presenter to join the session. The sessions were poorly attended (5, 2 and 1 respectively). Statistics for accesses (downloads) of recordings were not generated.

## **The 2007 course revision: A more comprehensive integration**

An issue for this iteration was delays with the availability of the course materials at the beginning of semester resulting from late availability of a new edition of the text and production and dispatch of materials on CD-ROMs to all students rather than print-based. However, ALL the material provided on their CD-ROM was also made available on the course LMS site prior to the start of semester, minimising the impact of any delay in provision of CD-ROMs on student progress.

At the time of planning how to organise and run the course for this semester, the numbers provided by the student administration system were significantly lower than shown in Figure 1 for some locations: Coffs 6 (11 in Figure 1), Tweed 6 (12 in Figure 1) and External 39 (80 in Figure 1). Planning in late January with the Head of School resulted in permission to use the structure that was adopted, based on the student administration system showing 6 enrolments at each of the Coffs and Tweed campuses. This low level of enrolments was the catalyst for the decision to have the Lismore class run face-to-face and WBA used to broadcast (and record) into Tweed and Coffs at the same time (Thurs 2-5pm) on each campus. This also opened the session to any externals. Students from whatever location were encouraged to consider joining the sessions from home or work if they were employed and not even having to come to campus for the class. In addition, three sessions were scheduled in the evening during the semester for the externals not able to make the afternoon time slot which were also available to ALL students.

Campus visits were arranged to personally advise students at Coffs and Tweed of the delivery mode for the course given the small relative enrolment numbers. Students were advised via email and phone contact by the admin team of the visits. Given the trial nature of this approach, and the fact that the Coffs and Tweed students were being asked to attend via WBA for the semester, a free headset was provided. Discussion in these meetings led to agreement to deliver at least one session from Coffs and Tweed campuses depending on specific circumstances and opportunities arising during the semester. This had been one of the options considered in earlier deliberations but discarded due to enrolments showing at each location, so not a grudging concession.

The decision to run with the 3 hour slot provided a challenge about how to set up and record the sessions. The 3 hours was divided into 3x50 minute parts – content review, questions and activities from the text and finally questions and activities from an integrated case. The challenge to resolve was to have a separate room for each of the 50 minute parts so that each recording was discrete and smaller to work through by students when reviewed, or a single room for the whole session. The latter was chosen to avoid online participants needing to log off and back in to another room. Logging out and back in to another session was considered too much of an incentive not to rejoin the session given the already trial nature of what was being attempted. The 3 hour block was not desirable, but it was just not worth the challenge of trying to make timetable adjustments at such a late stage across three campuses. All new approaches usually begin with small, uncomfortable steps!

It is also worth noting that content was not pre-recorded in 2007. This was deliberate because the opportunity to deliver the sessions face-to-face with additional students online and record the session for those unable to attend was practical having learned from the lessons of what technology was required in the teaching space from 2006. As you will see in 2008, however, pre-recordings were re-introduced, albeit in a quite different form and for quite different reasons.

### **2007 session attendance and recording usage**

A roll maintained for weeks 1 and 2 in Lismore showed 21 and 19 (respectively) face-to-face students were present. A roll was not maintained thereafter. Reflection on face-to-face attendance by the lecturer

was that once students had been encouraged to join off-campus and they saw the benefit of recordings, regular attendance by the same group of students, around half the original numbers each week in Lismore became the norm. Diary notes show that when delivery was at Coffs and Tweed, 3 and 4 students (respectively) turned up to the designated room for each session. Figure 2 shows the number of students who attended each session online and the number of times each of the session recordings were downloaded. The lowest points of attendance are explained as follows: 28/3 was the day before the Easter study week commenced; 2/5 and 30/5 coincided with lodgement dates for assignments in other courses. Why students continue to turn up to campus would also be worth further investigation. Perhaps it is for social interaction, to meet their learning expectations, other courses being scheduled for the same day, a study day being provided by their workplace or simply living close to the University campus. Burgan (2006),

Date Recorded	Session	Online students	Downloads per session	Downloads per month			
				Mch	Apr	May	Jun
28-Feb	Intro	19	4	4			
7-Mar	Topic 1	24	35	2	7	6	20
15-Mar	Topic 2	18	22	1	4	4	13
22-Mar	Topic 3	24	36	3	10	5	18
28-Mar	Topic 4	4	26	2	12	6	6
29-Mar	Ext Topics 1-4	7	35	4	11	7	13
5-Apr	Topic 5	16	32		12	3	17
19-Apr	Topic 6	12	30		7	1	22
26-Apr	Topic 7	15	31		3	9	19
3-May	Ext Topics 5-8	4	19			7	12
3-May	Topic 8	17	41			19	22
10-May	Topic 9	19	23			10	13
10-May	Guest lecture	32	20			13	7
17-May	Topic 10	10	27			8	19
24-May	Topic 11	9	22			6	16
31-May	Topic 12	10	21			5	16
31-May	Ext Topics 9-12	1	21			1	20
7-Jun	Review 1	8	31				31
20-Jun	Final Review	27	21				21
		276	497	16	66	110	305
				3%	13%	22%	61%

**Figure 2: ACC00130 Auditing 2007 session delivery and recording dates and downloads.**

The right hand side of Figure 2 shows a detailed view of the pattern for downloads of recordings per month. For example, you can see that 61% of the total sessions recorded were downloaded during June. This was the revision period prior to the exams. You can also see from Figure 3, however, that recordings were downloaded across the semester and not just at the end. As an example, Topic 4 on 28 March was downloaded 26 times – 2 times in March, 12 times in April, 6 in May and another 6 in June. There seems a fairly regular pattern of recordings being viewed by a number of people quite soon after the session when viewing the data this way. Rowe and Ellis (2008) present an initial qualitative analysis of these patterns in comparison to the total download patterns across the university and a more rigorous statistical analysis is currently in progress so that firmer conclusions can be drawn.

A very brief overview of the standard end of semester feedback received from students is included here to offer a glimpse at the impetus provided for the continuation of this approach. The very positive nature of the feedback was not expected because of reservations noted above and the experimental nature of some elements of the approach. The response rate was approximately 25%. On a 5 point Likert scale, the overall satisfaction was 4.04 with 82% of respondents either agreeing or strongly agreeing they were satisfied overall with the unit. 89% agreed or strongly agreed that they developed valuable skills and attributes and 100% agreed or strongly agreed that they were responsible for their own learning. One sobering piece of feedback taken forward was that although 67% either agreed or strongly agreed with the way the unit was taught, 26% either disagreed or strongly disagreed – this was by far the highest point of dissatisfaction. Unfortunately, the anonymous nature of the instruments makes it impossible to follow-up such dissatisfaction. However, the need to clearly explain and justify the approach is accepted. Finally,

the following extract from an email at the end of the semester is offered as typical from students who responded to an invitation to reflect on their experience: "... I would just like to thank you for teaching me this semester. In the four or five years i've been here, i haven't had the privilidge of being taught a unit in a fashion such as this [sic]. So thanks for putting in the time and effort, looking forward to Advanced Auditing."

## **The 2008 course revision: Handing over the approach**

Despite the positive feedback in 2007, circumstances dictated considerable modifications to the approach for 2008. These included handing the delivery over to another staff member; pre-recording and providing the content on their materials CD-ROM; delivering the course entirely online using WBA and selling this 'updated' approach to the students.

A late decision to grant the usual lecturer study leave for semester 1, locating and negotiating with a willing casual lecturer to run a course of this nature, negotiations with the HOS to take advantage of pre-recorded lecture content for issue to students as part of their materials package on CD-ROM ensured the preparation was not ideal. The location and negotiations with a casual lecturer is worth further comment. Normally the hand over would be to a person who could deliver on the same campus as the lecturer taking leave. The intended online approach provided the hand over to a casual lecturer in another state (Queensland) who did not need to be on any campus for the delivery. In fact, the lecturer could deliver the sessions from his home to minimise the need to travel considerable distance to the nearest (Tweed), or any campus. This opens up a range of potential opportunities to cover staff absences. It also demonstrates how staff travel can be minimised at the same time as opening up access to staff for students. This happens because the time taken up by a repeat session and travel between campuses can be allocated to consultation time for students. This is but one possibility.

Consistent with the experience of the student system in 2007, the number of students showing in the student administration system during planning were much lower than shown in Figure 1, affecting initial design of the structure and subsequent adjustments to the intended approach. For example, Lismore and Tweed showed 10 enrolments each (17 and 11 in Table 1 respectively) and Coffs 5 (6 in Table 1). Accordingly the initial structure planned to deliver only online due to the low numbers on each campus was modified. While this was a departure from University policy, it was sanctioned as a trial given the success of 2007 and the willingness to generate data to inform the wider University debate about flexible delivery options. The online sessions were scheduled for the same time as in 2007 (Thursday, 2-5pm) and were to be delivered by the lecturer from his home. The following modifications to the planned delivery were made at the discretion of the lecturer, in consultation with the Head of School and students as the semester unfolded. The lecturer delivered one session from Coffs (Topic 6), one online session from 5.30pm rather than 2pm (Topic 7), one session from Lismore (Topic 9) and the final three sessions from Tweed (Topics 10, 11 and 12). Only 1 student attended the Lismore session and none turned up to the Coffs session. At the time of writing the other data necessary to present 2008 usage (as in Figure 3 for 2007) is not available.

The initial plan was communicated to all enrolled students prior to semester starting by letter under the name of the Head of School, an email advising them of the letter from the Head of School and directing them to the materials and advice on the course LMS. As for 2007, all material that was to be sent to students on CD-ROM was placed on the course LMS prior to semester commencing to alleviate potential delays in distribution of the CD-ROMs. It was made clear in these communications that the scheduled online contact time was to review activities and questions and not to deliver content which was presented in pre-recordings complementing the study guide and textbook. Contact time was designed to apply the principles and knowledge learned from the student working through the content. Students were encouraged to bring along things they did NOT understand rather than expect to be told what they thought they needed to know.

Meanwhile, the system "fought back" providing delays in preparation and distribution. This frustrated the communication efforts. Outsourcing of the CD-ROM production extended the delays and even when they finally arrived for distribution a miscommunication saw them only dispatched to students who were enrolled as external. It was not until the end of week 4 that this was sorted and resolved and on-campus students received their CD-ROM. It is however, important to stress that ALL material on the CD-ROM was available on the course LMS.

An unexpected outcome from the review of 2006 and 2007 WBA recordings was the confirmation of the undesirability of the 50 minute and 3 hour recordings. This is an illustration of the potential of the

recordings being used for professional development by individual lecturers and led to a significant change in delivery of content by pre-recording in the 2008 offering. Rather than feel constrained to fill a time slot (50 minutes) that had been timetabled and too challenging to change, the content was able to be viewed through quite a different lens for pre-recording because the focus was not the constraining timetable but the flexible availability of the content for the students. Self-review of the recordings also made it clear that the sessions were just too long, despite recordings having a built-in indexing feature to facilitate easy navigation to relevant parts of the session. Accordingly, the traditional 12 x 50 minute content sessions (also used in 2006) were pre-recorded as 23 content sessions ranging from 13 minutes to 41 minutes each. The total time increased by only 14 minutes. The content was broken down into more discrete segments rather than cobbled together to form a “topic” which would normally cover several principles and issues. This offered students greater flexibility in moving through the material and also prevented content from blurring within topics. The following is a typical example of student feedback received (discussion forum posting 7/3/08): “This is definitely the best set up I have had with regard to illuminate [sic]. Having them pre-recorded allows me to work through the topics at my own pace. ... Thanks again, very efficient.” One important sacrifice for research of offering this flexibility is that there is no reliable way of tracking the frequency of use of the pre-recordings provided on the CD-ROM.

The flexibility offered by breaking this ‘time mode’ for both teaching and learning by the use of WBA offers real potential for re-engineering how we think about and use learning spaces to develop the “new forms of pedagogical engagement that invite prod-user participation rather than passive consumption” (McWilliam and Jackson, 2008). For example, the first contact session for the week could be an active review of that content to ensure it is clear what students do or do not understand based on the work prescribed for learning the content. This can be followed by activities showing how to engage with the content to apply the knowledge and practice the generic skills embedded in graduate attributes. The increasing availability of wireless technology on and off campus makes it more than possible to actively engage students in their learning during synchronous contact and record those interactions for subsequent asynchronous review for learning or professional development, especially where face-to-face contact remains a required component of a course. Despite recent improvements noted in the Literature section, the main impediment holding back the realisation of this potential remains the beliefs, attitudes and mentality of staff (and institutions) that are so slow to shift (De Corte, 2000).

## Conclusions

The answer to the original question “Can one size fit all?” is a tentative yes. The lecturer has an increased range of options for interaction with their class from wherever they are to students wherever they are. Each specific purpose session need only be delivered once, and can be recorded and played back by any students who missed the original interaction, or the staff member and attending students for review.

How does the development of this approach offer benefits for staff and students in terms of improved flexibility for their teaching and learning? The following suggestions are briefly discussed for you to ponder: liberate time; repack content and re-engineer contact time; choice of ways to participate in contact time; options for engaging staff for delivery.

Staff often comment they are time poor. The approach demonstrates that it is possible to eliminate, or at least significantly reduce, the number of repeat classes offered, thus liberating one big time waster for staff. This is important for a couple of reasons, especially when travel between campuses is required, another time waster! By reducing or eliminating the travel time required just to get to class on another campus staff liberate their unproductive time so that some of the things they would like to do can be pursued. This may include increased scholarly activity, service or administrative activities, or even better, being available to support student learning. By delivering sessions only once, inviting any and all students to participate and recording the session for later review we also create a unique professional development ‘lens’ into our teaching – no intrusive video camera, or observer to disrupt the dynamics of session delivery or interaction. In effect the ‘lens’ offers the lecturer a first hand “view” of what they provide to the students. The power of this to generate critical reflection is potent.

The ability to pre-record lectures allows staff to repack their content outside the constraints of topics or weeks or the one hour lecture slot. By providing your content in this way, you also have the opportunity to reduce or eliminate the different interpretations where other staff deliver on another campus. The connections and threads through the text, study guide and your lecture content can be as you intend. Where you have tutors, they too can benefit from viewing your intentions at their convenience rather than having to fit into your lecture schedule, or not being privy to it at all. This pre-recording ability also allows guest interviews to be integrated with content very easily.

The option to not attend a campus but still participate in class is increasingly attractive as fuel costs rise making travel to and from campus expensive. These costs are relevant to staff, students and the University. The ability to join from home or the workplace minimises the unproductive time getting to and from campus for classes. If work or family commitments require time away, an Internet connection allows participation or access to recordings means nothing needs to be missed.

Students are treated equally and their status or requirements as on-campus or external need not differ because they are, or are not able to access a campus (for example for face-to-face class or video-conferencing). A wider range of views can be captured and shared in a session rather than not knowing what was discussed in any of the repeat or parallel sessions. It is possible to hear from a guest from anywhere in the world during their class. Like other participants, guests can join from home or work minimising their time commitment and increasing the likelihood of getting their involvement. The opportunity to actively participate in a wide variety of tasks if an interactive session is planned by virtue of the rich set of features available in WBA caters for meaningful development of professional graduate attributes. Preparation time for guests has never been longer than 30 minutes, at their convenience.

As a final word on the value of using WBA as an integral part of our teaching and learning strategy to prepare (business) students for their professional careers, it is worth noting that on 11 July, 2008 the Institute of Chartered Accountants in Australia (ICAA, 2008) launched an online training initiative using WBA. This had been forecast to our students as a key selling point during development of the approach described in this paper. This launch will now make that sell much easier.

## References

- Andresen, L.W. (1984) *Lecturing to Large Groups: A guide to doing it less but better*. Tertiary Education Research Centre. UNSW. Kensington. Occasional Publication No.24
- Barr, R.B. & Tagg, J. (1995) From Teaching to Learning – A New Paradigm for Undergraduate Education. *Change*, November/December, 13 – 25.
- Biggs, J. (2003) *Teaching for Quality Learning at University*. Open University Press, Berkshire.
- Blackboard (2008) <http://www.blackboard.com/us/index.bbb>
- Bligh, D.A. (1972) *What's the Use of Lectures?* Penguin, Harmondsworth.
- Chang, S. (2007) Academic perceptions of the use of Lectopia: A University of Melbourne example. In *ICT: Providing choices for learners and learning. Proceedings ascilite Singapore 2007*. <http://www.ascilite.org.au/conferences/singapore07/procs/chang.pdf>
- Cunningham, B. M. (1999) Energizing your teaching: A view from deep in the trenches. *Issues in Accounting Education*, 14(2), 307-322.
- De Corte, E. (2000) Marrying theory building and the improvement of school practice. *Learning and Instruction*, 10, 249-266.
- Dekkers, J. (1990) *Tutored Video Instruction – A Manual for Tutors*. University College of Central Queensland. Rockhampton.
- Dekkers, J. & Cuskelly, E. (1990) *The establishment and Use of Electronic Mail for Distance Education*. University College of Central Queensland. Rockhampton.
- Elluminate (2008) <http://www.illuminate.com/>
- Gosper, M., McNeill, M., Woo, K., Phillips, R., Preston, G. & Green, D. (2007). Web-based Lecture Recording Technologies: Do Students Learn From Them? Paper presented at the Educause Australasia 2007, Melbourne. <http://www.cpd.mq.edu.au/teaching/wblt/dissemination.htm>
- Hanno, D. M. (1999) Energizing your teaching: Developing a community of learning. *Issues in Accounting Education*, 14(2), 323-336. (Accessed in Proquest 13/4/07)
- Hiltz, S.R., Shea, P. & Kim, E. (2007) Using Focus Groups To Study ALN Faculty Motivation. *Journal of Asynchronous Learning Networks*, 11(1). <http://www.sloan-c.org/publications/jaln/index.asp>
- Ice, P., Curtis, R., Phillips, P. & Wells, J. (2007) Using Asynchronous Audio Feedback to Enhance Teaching Presence and Students' Sense of Community *Journal of Asynchronous Learning Networks*, Volume 11:2, July (Accessed at <http://www.sloan-c.org/publications/jaln/index.asp> 21/8/07)
- ICAA (2008) Tools: launch of Live Online Training. <http://www.charteredaccountants.com.au/A121632999>
- Lane, C. (2006) UW Podcasting: Evaluation of Year One. *University of Washington Catalyst*, (Accessed at [http://catalyst.washington.edu/research\\_development/papers/2006/podcasting\\_year1](http://catalyst.washington.edu/research_development/papers/2006/podcasting_year1) 6/1/08)
- Laurillard, D. (1993) *Rethinking University Teaching: A Framework for the Effective Use of Educational Technology*. Routledge, London.
- Lee, M., Can, A. & McLoughlin, C. (2006) Educational podcasting using the Charles Sturt University flexible publishing platform. In T. Reeves & S. Yamashita (Eds.), *Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare and Higher Education 2006*, Chesapeake, VA:

- AACE.
- McElroy, J. & Blount, Y. (2006) You, me and iLecture. In *Who's learning? Whose technology? Proceedings ascilite Sydney 2006*.  
[http://www.ascilite.org.au/conferences/sydney06/proceeding/pdf\\_papers/p87.pdf](http://www.ascilite.org.au/conferences/sydney06/proceeding/pdf_papers/p87.pdf)
- McLoughlin, C. & Lee, M. (2008) Future learning landscapes: Transforming pedagogy through social software. *Innovate* 4 (5). <http://www.innovateonline.info/index.php?view=article&id=539>
- McNeill, M., Woo, K., Gosper, M., Phillips, R., Preston, G. & Green, D. (2007) *Using web-based lecture technologies – advice from students*. Paper presented at the HERDSA, Adelaide. (Accessed at <http://www.cpd.mq.edu.au/teaching/wblt/dissemination.htm> 6/1/08)
- McWilliam, E. & Jackson, (2008) *No longer tuned in to master's voice*. The Australian Higher Education Supplement – Opinion Section. <http://www.theaustralian.news.com.au/story/0,25197,23953513-25192,00.html>
- Palmer, P. (1993) Good talk about good teaching: Improving your teaching through conversation and community. *Change*, 25(6), 8-13. (Accessed in Proquest 13/4/07)
- Phillips, J. (1991) Interaction in Distance Education: Implications for the Faculty of Business and Computing. *Faculty of Business and Computing Seminar and Working Paper Series No.8*, UNE Northern Rivers.
- Phillips, R., Gosper, M., McNeill, M., Woo, K., Preston, G. & Green, D. (2007) Staff and student perspectives on web-based lecture technologies: Insights into the great divide. In *ICT: Providing choices for learners and learning. Proceedings ascilite Singapore 2007*.  
<http://www.ascilite.org.au/conferences/singapore07/procs/phillips.pdf>
- Rowe, S. & Ellis, A. (2007) From single tool to complex teaching and learning toolkit: Audiographics comes of age. In *proceedings for E-Learn 2007: World Conference on E-Learning in Corporate, Government, Healthcare, & Higher Education*, Quebec City, Canada
- Rowe, S. & Ellis, A. (2007a) How the Web has changed lecturing: going the full circle. In J. Richardson & A.Ellis (eds) *AusWeb07: Proceedings of the Thirteenth Australia World Wide Web Conference*, Novotel Pacific Bay Resort, Coffs Harbour, Australia.  
<http://ausweb.scu.edu.au/aw07/papers/refereed/rowe/>
- Rowe, S. & Ellis, A. (2008) Enhancing the convenience and flexibility of student learning options: Using recorded audiographic Web conferencing sessions. In *proceedings for ED-MEDIA 2008: World Conference on Educational Multimedia, Hypermedia & Telecommunications*, Vienna, Austria
- Shulman, L. (1987) Knowledge and Teaching: Foundations of the New Reform. *Harvard Educational Review*. Vol. 57, No.1, February. 1-22
- Shulman, L. (2002) Making Differences: A Table of Learning. *Change*, 34(6), 36-44.
- Swan, K. (2007) Research on Online Learning. *Journal of Asynchronous Learning Networks*, Volume 11:1, April. <http://www.sloan-c.org/publications/jaln/index.asp>
- Turoff, M. (2006) The Changing Role of Faculty and Online Education. *Journal of Asynchronous Learning Networks*, Volume 10:4, December. <http://www.sloan-c.org/publications/jaln/index.asp>
- Williams, J. & Fardon, M. (2007) Perpetual connectivity: Lecture recordings and portable media players. In *ICT: Providing choices for learners and learning. Proceedings ascilite Singapore 2007*. (Accessed at <http://www.ascilite.org.au/conferences/singapore07/procs/williams-jo.pdf> 6/1/08)
- Williams, J. & Fardon, M. (2005) On-demand internet-transmitted lecture recordings: attempting to enhance and support the lecture experience. In *Proceedings Alt-C 2005* (Manchester, September 2005), Association for Learning Technology, 153-161.
- Wilson, G. P. (1999) Teaching and learning can be energizing. *Issues in Accounting Education*, 14(2), 337-368.

**Authors:** Stephen Rowe. Email: [stephen.rowe@scu.edu.au](mailto:stephen.rowe@scu.edu.au)  
 Allan Ellis. Email: [allan.ellis@scu.edu.au](mailto:allan.ellis@scu.edu.au)

**Please cite as:** Rowe, S. & Ellis, A. (2008). Can one size fit all? Using web-based audiographics to support more flexible delivery and learning. In *Hello! Where are you in the landscape of educational technology? Proceedings ascilite Melbourne 2008*.  
<http://www.ascilite.org.au/conferences/melbourne08/procs/rowe.pdf>

Copyright 2008 Stephen Rowe and Allan Ellis

The authors assign to ascilite and educational non-profit institutions a non-exclusive licence to use this document for personal use and in courses of instruction provided that the article is used in full and this copyright statement is reproduced. The authors also grant a non-exclusive licence to ascilite to publish this document on the ascilite web site and in other formats for *Proceedings ascilite Melbourne 2008*. Any other use is prohibited without the express permission of the authors.