

# Web Based Lecture Technologies: A Lens Intensifying the Changing Roles of Learners and Lecturers

**David Green**

Staff Development & Training Unit  
Flinders University  
Australia

[david.green@flinders.edu.au](mailto:david.green@flinders.edu.au)

**Margot McNeill**

Centre for Professional Development  
Macquarie University  
Australia

[margot.mcneill@mq.edu.au](mailto:margot.mcneill@mq.edu.au)

**Maree Gosper**

Centre for Professional Development  
Macquarie University  
Australia

[maree.gosper@mq.edu.au](mailto:maree.gosper@mq.edu.au)

**Karen Woo**

Centre for Professional Development  
Macquarie University  
Australia

[karen.woo@mq.edu.au](mailto:karen.woo@mq.edu.au)

**Rob Phillips**

Teaching & Learning Centre  
Murdoch University  
Australia

[r.phillips@murdoch.edu.au](mailto:r.phillips@murdoch.edu.au)

**Greg Preston**

School of Education  
University of Newcastle  
Australia

[greg.preston@newcastle.edu.au](mailto:greg.preston@newcastle.edu.au)

**Abstract:**

There is now widespread recognition of the changing nature of students in higher education: they come from a wider sphere of the community; they are busier with work and family commitments outside their study; and they demand greater flexibility and support during their programs.

This paper reports on recent research into the impact of web-based lecture technologies (WBLT) which indicates that, while many academics recognize the changing nature of their learners and the sector generally, many have not changed their curriculum to meet these demands. The central premise in this paper is that while many academics are concerned

that WBLT have impacted on students' learning and overall results, the technologies have really just provided a lens with which to view several emerging issues:

- new roles for students, including the blurring of traditional lines between internal and external study patterns;
- new roles for lecturers, including integrating technologies into curriculum design; and
- new roles of lectures in technology rich environments.

## Background

Web-based lecture technologies (WBLT) have gained popularity in many higher education institutions as tools to provide flexible access to lectures for students. These technologies can be described as distributed recording systems for digitally capturing face-to-face lectures for web delivery in streaming, downloadable or podcasting formats. Lectopia (previously known as iLecture) is an example of this type of technology (Lectopia, 2007) which is in use at three of the four universities which took part in this study.

This paper reports on parts of a larger study, across four universities (<http://www.cpd.mq.edu.au/teaching/wblt/overview.htm>) exploring how WBLT can best be used to support learning and teaching. The study employed a mixed methods approach (Creswell, 2003), drawing on quantitative and qualitative data obtained from both students and lecturers who used WBLT. Four main data collection activities were undertaken during the study: a student survey, a staff survey, in-depth interviews with both students and lecturers, and a set of case studies designed to investigate issues in depth, or implement possible strategies.

The student survey collected data on four specific areas in relation to the students and their use of WBLT. The first part of the survey asked students about their experience of WBLT in the context of a specific subject. In the second part, students were given the Revised Two-factor Study Process Questionnaire (Biggs, Kember, & Leung, 2001). The third part of the questionnaire asked students about their overall experience of WBLT in the university. In the final part, students' demographic information was collected. In total, 13278 students were invited from a selection of units across the four universities and 815 responded. The survey invited only those who had used WBLT to participate and no incentives were offered. The exact response rate of the survey cannot be determined as, although all students enrolled in those subjects were offered the technology, it is impossible to know the exact number of students in those units who actually used WBLT. Nonetheless, the sample size was large enough for statistically valid conclusions to be made.

The lecturer survey was designed to correspond where possible with the student survey, so that results could be compared. The survey collected data on three specific areas in relation to lecturers and their use of WBLT:

- 1) the teaching and curriculum context, including details of delivery mode and discipline area;
- 2) the reasons for using WBLT and the strategies adopted; and
- 3) perceptions of the effect of WBLT on lecture attendance and communication patterns between themselves and their students.

In addition, Trigwell & Prosser's (2004) *Approaches to Teaching Inventory* was included to provide insight into lecturers' perspectives of their teaching philosophy. A total of 676 academic teaching staff who had made use of WBLT were invited to participate in the survey and 155 (22.9%) responded from across the four universities.

In order to provide a more contextualized view of the issues emerging from the surveys, staff and students respondents were invited to participate in interviews to develop vignettes. Participants self nominated and semi-structured interviews were used to gather more detail about their specific experiences using the technologies. In total, 19 vignettes were developed and are available, along with an analysis of the results, on the project website.

The third phase of the study involved a series of six case studies, designed to be either investigative or developmental. Academics known to use web-based lecture technologies in innovative ways were invited

to participate in the case studies to explore the issues emerging from the earlier phases or implement strategies to improve practice.

More details about the project's methodology and the statistical analyses, along with the vignettes and case studies, are available from the project website: <http://www.cpd.mq.edu.au/teaching/wblt/overview.htm>.

## **WBLT and the Changing University Context**

In many universities, both in Australia and overseas, WBLT have been introduced in recognition of the need for flexible learning options for their on-campus or 'internal' students. These tools have provided students with choices in how they access lecture content and how they use that content to support their learning.

Not surprisingly, WBLT are gaining in popularity, particularly with students finding that their needs for flexibility have not been met by 'traditional on-campus teaching paradigms' (G Lefoe & Albury, 2004). With increased demands posed by work and family commitments (Anderson, 2006; McInnis & Hartley, 2002), recent studies have confirmed students' appreciation of the convenience and flexibility offered by anytime, anywhere access to lectures (Fardon, 2003; McNeill et al., 2007; J Williams & M Fardon, 2007).

In addition to flexibility, students are also generally positive about the impact these technologies have on their learning (Williams & Fardon, 2005). Recent studies, (McElroy & Blount, 2006; Soong, Chan, Cheers, & Hu, 2006) found that students agreed that lecture recordings enhanced the course when compared to other subjects without this facility. There is also evidence that WBLT are used by students as a study tool to complement face-to-face lectures (Signor, 2003; J Williams & M Fardon, 2007). Students reported using WBLT to support their learning by checking over notes, by reviewing difficult concepts, by revising for exams and by listening to missed lectures (McElroy & Blount, 2006).

The response to WBLT by academic teaching staff has been less consistent than their student counterparts. Some lecturers have adopted WBLT as tools which can be used to enhance student learning and flexibility (Williams and Fardon, 2007) while other lecturers have criticized WBLT as reinforcing lecturing as a primary learning activity (Donnan, Kiley, & McCormack, 2004) or contributing to students' low attendance (Williams and Fardon, 2007; Phillips et al, 2007).

A picture therefore emerges of universities introducing tools such as WBLT as part of their attempts to adapt to the changing needs of their students, which have then enjoyed a positive reception by students for their added flexibility. The picture also shows academic teaching staff as being less positive as they struggle to deal with the complexities of the changing environment in which they work.

As WBLT and other technologies have been introduced, they have provided a lens intensifying the complex teaching and learning context. The key themes to be explored using this lens in the next section of the paper are:

- new roles for students, including the blurring of traditional lines between internal and external study patterns;
- new roles for lecturers, including curriculum design with technologies; and
- new roles of lectures in technology rich environments.

## **WBLT and New Roles for Students**

Respondents from across all four universities liked WBLT and found it helped them to learn. Seventy-six percent (76%) reported they had a positive experience with WBLT almost always or frequently. When asked if they thought that using WBLT made it easier to learn, 80% of respondents agreed that it had in either a significant or a moderate way; 13% were not sure if there was any change and only 7% felt it didn't help or was detrimental.

When asked if they thought using WBLT helped them achieve better results, 67% of respondents agreed that it had, in either a significant or a moderate way; 23% were not sure if there was any change and only 10% felt it didn't help or was detrimental.

Students appreciate WBLT as providing additional study tools to assist their learning although face-to-face lectures are also seen as valuable. 76% of students indicated they used WBLT to study for exams, and the same number indicated they used the recordings to revisit complex ideas and concepts. 63% of students indicated they used WBLT to take notes from the lectures. It is clear that, whether attending the face-to-face sessions or not, the recordings provided opportunities to support learning of the content presented in lectures.

Technologies such as WBLT have often been introduced as an enhancement for those students enrolled as distance education or 'external' students. The sense of isolation experienced by external students is well-represented in the literature (Galusha, 1997; Simpson, 2000) and WBLT can assist in breaking down this isolation and motivating students to learn, particularly if lecturers acknowledge and cater for the presence of students other than those visible in the lecture room.

Although it has long been acknowledged that external students need flexibility, the data indicates that students enrolled in internal mode also appreciate this aspect of WBLT. From the survey responses, 56% of students indicated that they didn't attend at least some of the face-to-face lectures that were available. Of these students, 75.3% indicated this was because they 'couldn't attend'.

The need for flexibility emerged in the open-ended comments from students enrolled in both internal and external modes. For example, one of the external students interviewed for the project has two young children and finds it very useful that she can listen to the lecture recordings on an iPod whilst her daughters have ballet lessons. She commented that WBLT makes it possible for her to keep up-to-date with the course. However, the same need for flexibility is required by an internal student who lived over an hour away from campus and needed to drop off her children to school at the time when the lecture is on.

The use of WBLT doesn't necessarily exclude lecture attendance as many students in both the surveys and interviews indicated that they often 'double up' by attending lectures and listening to the recordings. While they appreciate the flexibility and convenience of WBLT, students in the survey also like lectures. They find them motivating, they value contact with the lecturers and their peers and they find the visual aids helpful. Many of the comments from those enrolled in external modes indicate that they use WBLT to increase their sense of participation in the lectures and as a form of communication with their lecturers and peers.

Although WBLT were introduced to capture lecture content, some external students saw their use as reducing the sense of isolation and helping connect them to their lecturers and to each other, particularly when used in conjunction with other social technologies. As one external student commented:

*Every lecture should be available on [WBLT] and I would not mind if the tutorials were as well...  
With modern day technology external students could send their presentation taped and have discussion via skype... So we would not really be 'external'*

It is clear that the possibilities brought about by WBLT and other social technologies are challenging the traditional 'boundaries' between internal and external modes of study. Where once academics operated under the expectation that those students enrolled as on-campus students would attend most face-to-face lectures and those enrolled in external mode would not, these distinctions are becoming blurred. Blended learning models supported by a range of technologies have emerged which combine, for example, face-to-face lectures and/or tutorials with supplementary resources and discussion forums available online (G. Lefoe & Hedberg, 2006; R Phillips, 2005; R. Phillips, 2006). As suggested by Lefoe and Albury (2004), 'the teaching, delivery methods and resources once used only for one area are now used to support learning in both' (2004, p. 1).

## **WBLT and New Roles for Lecturers**

The lecturers survey asked about perceptions of the use of WBLT for teaching and learning. There was a mixed response about lecturers' experiences, with 54% of respondents finding use of WBLT to be generally positive, while another 26% found the experience to be negative.

Lecturers were consistent in supporting WBLT for use by external students, whom they recognized as a distinct cohort falling into the category of not being able to come to class. Of the 155 respondents to the lecturers survey, 84 taught a mixture of internal and external classes. The use of WBLT was seen as beneficial to these students particularly for:

- providing up-to-date information;
- increasing a sense of belonging; and
- providing opportunities for interactions between staff and other students.

Interviews and open-ended comments indicate that whilst lecturers use WBLT in the choice they offer external students, there is concern that WBLT could be detrimental for internal students, as typified by this comment:

*For internals I think it can help them to justify not coming to lectures. They think, "it's OK not to go, I'll listen to the iLecture later". I fear later never comes or comes too late and they cram for assessment. Externals, however, brilliant!*

The data suggests that lecturers perceive differences in the benefits for internals and externals. It seems they recognize the benefits for external and part-time students, but are not sure of the benefits to on-campus students, and are concerned about lecture attendance trends. There was a common perception that WBLT encouraged students to give preference to other commitments because a backup was available, as typified by this comment:

*Students seem slightly more willing to skip class when other pressures come up (eg, work) as they know they can catch up via the iLecture recording.*

While it is well recognized that student attendance at lectures has been reducing over recent years (R. Phillips et al., 2007) (Maag, 2006; Massingham & Herrington, 2006), it seems that WBLT has focused attention on this trend (acting as a 'lens') making student absence more obvious to lecturers. The staff survey asked for agreement with the statement *Student attendance in my lecture has decreased as a result of using WBLT*. Just over half (55%) of the respondents felt that WBLT had resulted in decreased lecture attendance and many of the open ended comments and interviews reinforced this concern.

Lecturers are concerned about the impact on internal students of non-attendance, including their inability to keep up with crowded curricula, engagement with the content and the continuity of lectures and tutorials.

This concern about attendance does not seem to be shared by students. When students were asked why they didn't attend face-to face lectures, 68.3% of the 331 respondents agreed with the statement *I could learn just as well using WBLT as face-to-face*. The corresponding item was rated lowest by staff, with only five (3.6%) agreeing with this statement.

Lecturers are also concerned with non-attendance because of the impact it was having on the lecture dynamic and other teaching and learning activities. The lack of immediate feedback was raised in open ended comments and interviews, yet there were few examples of lecturers' attempts to introduce other methods to compensate for these changes.

## **New technologies and curriculum change**

The introduction of any new technology should be considered as impacting on the whole teaching and learning context (Gosper, Woo, Muir, Dudley, & Nakazawa, 2007). With 79.9% of student respondents agreeing that WBLT was positive for their learning, and 75.3% listening because they couldn't attend at

times, the need for lecturers to adapt their lecturing style to accommodate the needs of listeners emerged strongly from the study. However, even though WBLT could be the catalyst for careful thought about the role and value of lectures:

- 43.2% of staff respondents had not changed their lecturing style
- 36.7 % had not changed what they do in their lectures
- 74.9% had not changed the structure of their unit

WBLT has highlighted the need for lecturers to change curriculum to adapt to the lifestyle influences of students while meeting the overall learning outcomes of the discipline. The lecturers who indicated that they have changed their practice are the ones who used WBLT to support students who cannot attend class. These were also the lecturers who reported generally positive experiences with WBLT. Some examples include acknowledging the needs of listeners when using visual aids and integrating WBLT with other technologies, for example online discussions.

In one of the staff interviews the benefits of broadening the range of collaboration opportunities between external and internal students were highlighted:

*I started directly talking to the external students during (WBLT) recording...I could ask questions in a lecture and within an hour or two externals have heard the lecture, heard the question and posted on the discussion forum their responses to the questions, so it's more of a united group of students now*

The same lecturer described efforts to provide online equivalent experiences for the external students in his cohort, such as posting a photo where internal students had brought along an item to class. There were also signs that a community was being built between internal and external students. The same lecturer found that “the students are helping each other more and more, not just with concepts but also supporting each other emotionally”.

## **The Changing Role of Lectures (and Lecturers)**

Our research suggests that WBLT are highlighting the need for academics to reconsider the role of lectures in supporting blended learning. With some students being offered the technologies and choosing not to attend, some academics have begun questioning the role of lectures. A range of lecturers' responses to this changing attendance pattern emerged from the study, from restructuring their units to replace lectures with more interactive tutorials or workshops, to replacing some face-to-face lectures with additional tutorials and providing the lecture materials as pre-recordings. In contrast, one interviewee had introduced roll taking to encourage students to attend.

The research indicates that lecturers and students have different perceptions of the role of lectures. While students find WBLT valuable as a back up and as a study tool, they also appreciate lectures as motivating, providing contact with lecturers and peers and they find the visual aids helpful. For students, the use of WBLT doesn't necessarily exclude lecture attendance.

In contrast, some of the lecturers indicated that they value being able to determine the content students receive, from a quality perspective. One interviewee commented that:

*I implemented lectures in order to bring the students together and to make sure that everybody is at least getting (structured content).*

Those lecturers who scored highly on the 'Information Transmission, Teacher Focus' aspect of the Trigwell & Prosser's (2004) *Approaches to Teaching Inventory* scale, were less likely to agree that WBLT could help them provide a framework for their students or enhance their capacity to motivate and communicate with their students. These lecturers were also less likely to agree that students could learn just as well from WBLT as face-to-face lectures.

The findings of the research also indicate a correlation between choice and positive experience with WBLT. Those lecturers who reported having a little sense of choice regarding the implementation of WBLT, due to pressures from the institution or their students, were more likely to disagree that their experiences had been positive. This seems to suggest that much of the negative discourse of WBLT is related to the lecturer's sense of control of their choice of using WBLT. If they are pressured to use WBLT, they reacted negatively towards it, impacting on their perceptions about the usefulness of the tools and their effectiveness.

## **Conclusion**

WBLT have provided a lens through which to view the complex and changing nature of university teaching and learning. These changes include the new roles for students and staff; the need to consider curriculum design with technologies; and the changing roles of lectures in technology rich environments. WBLT has the ability to magnify trends; for example, dropping attendance and the changing student profile. Students believe they can learn just as well using these technologies and appreciate the flexibility they offer. Rather than adhering to a predetermined mode of enrolment, students can exercise their ability to choose whether to attend face-to-face lectures. The technology allows the blending of the two modes of study and students are beginning to do this, whether lecturers want them to or not. In the future, some units of study may not need to make the distinction between the two, whereas others may need to continue clearly distinguishing between the two; For example units that need specialized laboratory or practical sessions.

The research also indicates the need for lecturers to be more reflective in examining their own roles and the roles of lectures in the light of the changing needs of students. With many students indicating that face-to-face attendance is neither possible nor ideal, the focus needs to shift to improving the experience of the learners, and making the most of the valuable face-to-face time for what it is most useful. In order to maximize student learning, lecturers need to make decisions about what role lectures should play, and what roles supporting technologies should play in the design of curriculum.

Also emerging from the study is the need for teaching staff to carefully manage student expectations. In particular, they need to clearly articulate what is involved in learning for the particular unit of study, what role the lectures and other activities play in the learning process, and the role technologies play in supporting learning. This will help students to manage their learning and meet the expectations of the teaching staff.

At a policy level, the research indicates that lecturers' sense of control over whether new technologies such as WBLT are introduced is critical to their overall perception and implementation. Policies should support staff in making the decision on whether they use WBLT or not and by providing the resources to support their decision. Our study showed much of the negative discourse of WBLT is related to the lecturer's sense of control of their choice of using WBLT. If lecturers feel pressured from the university or their students to use WBLT, they are more likely to react negatively towards it.

In order to maximize learning benefit from the use of such technologies, it is clear that professional development is required which deals with more than just using the technology. Such professional development activity needs to allow opportunities for reflection on how students use the technologies, how curriculum structure might change to optimize learning, and how other technologies may be used to complement such use.

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