BACKGROUND BRIEFING:
Wattle – the ANU’s online learning environment

ANU’s Wattle

ANU’s Wattle – our online learning environment – is comprised of three applications, i.e. Moodle + DLD + Adobe Connect. Academics creating materials to be uploaded to Wattle can use or link to content created using authoring tools or shared via social networking or repository sites. Currently, the ANU does not have a University-wide portfolio tool.

In addition to LMS tools, the ANU’s Wattle has a lecture recording tool (DLD) and a desktop videoconferencing tool. The lecture recording tool works only in certain, equipped teaching spaces and is accessed via the podium. It is simple to use, and lectures captured this way will usually automatically appear in the DLD “block” on your Wattle site within hours. In the older equipped teaching spaces, DLD collects an audio recording of the lecture. In some of the more recently-equipped spaces, it is possible to capture a video of the lecture, or an audio recording plus anything that is projected onto the screen of the theatre, i.e. images like PowerPoint slides or taken from the document camera. The video-conferencing tool, Adobe Connect, is a bit like an online meeting tool. You shouldn’t try to use it for teaching purposes until you have practiced, but once you have mastered the technology, you’ll be able to teach up to about 15 students who are separated by geography at the same time.

Acquiring a Wattle site

Wattle sites are created each semester for the courses the College has on offer. Some Wattle sites are set up to serve only one course, while others serve more than one course. Imagine, for example, that we teach four courses in Research Methodology:

1. Introduction to Research Methodology (for undergraduates)
2. Quantitative Research Methodologies (for Honours and RTS students)
3. Qualitative Research Methodologies (for Honours and RTS students)
4. Choosing the best methodology for your cross-disciplinary PhD project (for PhD students)

It would be possible to have one Wattle site to service all courses, with students enrolled in several different being given access. The site would then need to provide students with the different Course Outlines for each of the four courses, but anything that is common to all four courses needs to be uploaded only once.

Getting a Wattle site is easy: make sure that the Senior School Administrator in your area knows that you need one. If she or he is unavailable, call Sue Bebbington in the Studio.

Reusing material in new Wattle sites

Copying material from an old Wattle site to a new one is quite easy. If you can’t do it yourself, call on the staff from the Studio to assist you.
Technology in education

In education, as in all things, technology is an enabler, not an end in itself. It ought to be used only to achieve real goals – pedagogical and disciplinary. The catch, though, is that unless you are familiar with the functionality of the technology, the possibilities are not transparent and if you spend time investigating the functionality of the technology, it may become the lens through which you view your teaching practice. Sometimes it’s best just to put that to one side, and to work out which bits of technology are going to help you to do your job better or more efficiently or more easily, based on the information you have to hand. To that end, here is some information.

Every teacher in Australia relies on technology: whiteboards, document readers, microphones, library databases … the list is endless. Usually, though, when people talk about technology in education, they mean the web-based tools. These tools assist you to design and implement teaching and learning activities. While it is true that occasionally a new web-based tool might prompt you to think of an innovative learning activity, generally things ought to work the other way round; that is, you design a learning activity and then seek out the technology that will enable you to run the activity.

The most commonly used web-based technologies in the delivery of higher education in Australia are:

- Learning Management Systems (LMS), e.g. WebCT, Moodle, Sakai, Blackboard or Janison
- lecture capture systems, e.g. the ANU’s Digital Lecture Delivery (DLD) or Echo 360
- desktop videoconferencing systems, e.g. Adobe Connect, Blackboard Collaborate, or Wimba Live Classroom
- portfolio tools, e.g. Mahara
- content authoring tools, e.g. Camtasia, Captiva, Audacity, GarageBand, and a raft of others
- social networking tools, e.g. blogging and wiki tools, YouTube, bookmarking tools and multiple purpose applications like Ning and ELGG
- repository / sharing sites like Instagram and Flickr

Learning Management Systems

The first true English-language Learning Management System to appear on the scene was WebCT, invented at the University of British Colombia in the mid to late 1990s by Murray Goldberg and his colleagues and graduate students. It proved to be such a useful tool in the management of online learning environments that it spread very rapidly throughout the English-speaking world and beyond. In the first couple of years, Goldberg gave away copies of the beta version of the application. With the advent of the LMS, many more institutions opened up their delivery modes and began to deliver programs at a distance (time or space or both). Prior to the invention of WebCT, university teachers were using a large number of web-based tools which had some but not all of the functionality of an LMS. Goldberg’s real breakthrough was twofold: he found a way to combine (almost) the full range of tools teachers were already using by combining one or more applications, and he introduced the idea of feeding data from institutional student records systems into the LMS automatically, so that only enrolled students had access to the password-protected online learning environment or the Learning Management System.

In 2012, we have two widely used open-source LMSs – Moodle, invented by Martin Dougiamas in Perth, and Sakai, created by a consortium of north American universities. The vendor-supported LMS market is dominated by Blackboard, which has in the last few years bought two of its three closest competitors – WebCT and Angel. The third serious player in this space, which has the second largest market share of the English-speaking LMS market, is a Canadian product called Desire2Learn. After Desire2Learn rejected a takeover offer from Blackboard in about 2005, Blackboard sued them for breach of patent. The story of the dispute is a long and fascinating one, documented in detail by bloggers like Michael Feldstein (e-Literate). The dispute was finally settled with a confidential agreement after years of litigation in the US court system. Not many of the details of the arrangement are known, but we do know that a couple of years after Blackboard was forced to return a “royalty” payment of $3 million to Desire2Learn, with interest, the company abandoned its claim to have invented the LMS.
The higher education LMS then, is dominated by these players. However, type "learning management system" into the search window for your browser, and you’ll come across any number of new products, some more obscure than others. Some of these other products are corporate LMSs, designed for use with training programs; others, like Janison, for example, emerged from the Vocational Education and Training (VET) sector, and are perhaps less suitable for higher education. The corporate LMSs differ from those designed for the higher education sector in a couple of obvious ways. One of these is that they generally have tools that provide for a more controlled pathway through the learning experiences, and they often have an editing module that provides for a team of curriculum designers working concurrently on the same learning sequence.

Designing a course to be delivered online or in a blended mode requires a slightly different approach to course design – and you do need to know what the technology can do before you decide how to use it. So, if you are planning to offer any web-based resources or experiences for your students, the first thing to do is attend technology training sessions and spend some time playing in one or more online learning environments. Sign up for a MOOC\(^1\), or listen to Daphne Koller talking about Coursera in her TED Talk\(^2\), or take a short course online, or ask a colleague if he or she will add you to his or her online course so you can poke around.

Keep in mind that we all use many tools that allow us to time-shift, and that this is one of the real strengths of web-based technologies. For example, we no longer always attend live theatre performances to be entertained by actors, because we have access to film; we no longer have to arrange to be at home in front of the television when our favourite soap opera is being broadcast, because we have PVRs; and we no longer have to attend the ACTU Congress to hear Bob Hawke belt out *Solidarity Forever* because we have the YouTube version\(^3\). It also means that for the first time for hundreds of years, university teachers are doing less lecturing, and more student-centred, learning activity-based teaching. They are, across the world, providing students with the declarative knowledge of the course (facts, principles, theories, formulae) before introducing learning activities in which they learn to use these facts, principles theories, and formulæ to analyze, synthesize, solve, judge and evaluate. The declarative knowledge, traditionally provided in lectures, is now also being provided in other ways, e.g. podcasts, guided readings, video clips and URLs to name a few. Depending on the structure of a course, this either allows students more flexibility in their ability to time-shift, or it frees up precious face-to-face time for other activities.

So what functionality does an LMS provide?

**Tools**

Every LMS in the world has a similar range of tools. These groups of tools provide for:

- **Dissemination of information**: These are the tools that allow you to send messages to students (e.g. news and notices), or direct them to information available in a digital form somewhere on the web (e.g. material available freely on the web or library databases to which the ANU library subscribes or information about processes and policies on the ANU website), or give them advance access to materials you have created (e.g. your lecture handouts).
- **Collaboration and conversations**: These are the tools that allow you to set up groups to work on projects, or initiate debates, or provide opportunities for students to comment or reflect on case studies, provocative statements, probing questions and the like.
- **Management of the participant group and the online learning environment**: These are the tools that allow you to track which pages have been viewed by which students, how often students have posted, when students have submitted assignments, patterns of access over time, and the like.

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\(^1\) [http://en.wikipedia.org/wiki/Massive_open_online_course](http://en.wikipedia.org/wiki/Massive_open_online_course)

\(^2\) [http://www.ted.com/talks/lang=en/daphne_koller_what_we_re_learning_from_online_education.html](http://www.ted.com/talks/lang=en/daphne_koller_what_we_re_learning_from_online_education.html)

\(^3\) [http://www.youtube.com/watch?v=MuMNJ-MyTWk](http://www.youtube.com/watch?v=MuMNJ-MyTWk)
• **Assessment**: The assessment tools generally include an assignment dropbox with an automated receipt function, an online markbook with selective, controlled release mechanisms (so that you can release marks to students as you wish), and various survey and quiz tools.

• **Activity sequencing tools**: These tools are starting to come into their own. They are tools that assist you to create a learning design or a learning sequence, so that you can control student progress through a number of different learning activities.

There are also many how-to videos on You Tube, which will walk you through various Moodle tools.

Quite apart from the various in-house applications, many university teachers have been making significant use of social media. In a recent book, Poore explores many aspects of social media, including the extensive range of tools – RSS, hyperlinks, tags, tag clouds, widgets, blogs, wikis, social networks, podcasting, visual media, messaging, chat, Skype, Twitter, bookmarking, clippings, mindmapping, polls, games, and mobile learning (Poore, 2013). Not only does she explain what these tools are, and how to use them, she discusses them in the context of education. This area of education is fast-moving and fluid. To cope with this, Poore provides a companion website⁴. On its own, the website provides an excellent overview of the value of social media for teaching and learning.

**Learning Analytics**

As more university teaching occurs online, institutions and individuals are drawing on the data available to assist them to understand more about the processes and of teaching and learning and the impact of innovations and curriculum changes. The term used increasingly for this area of university operation is “learning analytics”. Closely aligned with an older notion (educational data mining), the term “learning analytics” is used to refer to the measurement, collection, analysis and reporting of data about learners and their learning environments, for the purpose of understanding and improving learning and the environments in which it occurs.

Most universities with an online learning environment are able to discover where and when students are learning, how often they have accessed online materials, how long they spent on those web pages, and how successful they were at completing associated formative and summative assignments. For many years, Purdue University has used this data to attempt to predict students at risk, and to put in place preemptive activities to assist those students. The university combines predictive modelling with data mined from their Learning Management System. Among other things, the university correlates data showing how early students access web-based material with data that shows how well (or how poorly) they have done on their first assignment. This information is made available to staff through a home-grown system that has been accessed via mobile devices like phones and tablets. Academic staff members are able to select from a range of reports, and to send personalized emails and notifications to students via their mobile devices and course sites on the Learning Management System⁵. Purdue’s comprehensive strategy for assisting students at risk has given the university record growth in the retention of students, according to their newsletter (Purdue University, 2012).

We can expect to see greater use of this kind of data, both for purposes of improving the student experience and student learning, and for purposes of accountability.

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⁴ The companion website for Poore’s book can be found at: [http://usingsocialmediaintheclassroom.wikispaces.com/](http://usingsocialmediaintheclassroom.wikispaces.com/)

⁵ Purdue has commercialized their reporting system: [http://www.itap.purdue.edu/learning/tools/signals/](http://www.itap.purdue.edu/learning/tools/signals/)
In summary

My final words of advice about the use of technology for learning and teaching are these:

1. Implement in your course those technologies that will assist you to teach your students.
2. Don’t reject any technology until you know what it can do, and don’t assume you know what it can do until you have used it.
3. Don’t be distracted or beguiled by bright, shiny things; they are pretty, but they may not help you or your students.
4. Be clear about how the technology adds value: are you providing opportunities for time-shifting, or freeing up precious face-to-face time for something other than lectures, or something else useful?
5. Don’t be afraid of the technology: dive in, the water’s fine.

Deborah Veness
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