Abstract
This paper outlines a framework describing a range of additional skills that academic staff members need to develop in order to teach effectively online. These new skills are not limited to computer software skills or virtual learning environment (VLE) skills. In addition staff members need to develop administration skills, website design skills, e-moderation and online pedagogical skills. Academic staff members not only have to develop these skills, but they also need to develop time saving strategies.

Keywords
Online teaching skills

1. Introduction
Online teaching requires more skills than traditional teaching. The medium is different, the relationship with students changes and the burden on instructors increased. For example, an Australian Government report warns that "more and different 'basic skills' are required for academic work" (Yetton, 1997).

It is generally recognised that technologies are first used by enthusiastic early information technology (IT) adopters, later by mainstream users and eventually by late adopters (for example McGovern, Pannan and van der Kraats, 2001).

A number of reasons may be given for academic's resistance to technological change (O'Quinn and Corry, 2002). The lack of time to gain new skills is often the major reason that teachers give. Academic staff may find technical education difficult (Rebaza, 1998; Furnell, Evans, Phippen and Abu-Rgheffii, 2004). Other concerns include workload and copyright (McPherson, 1997). Finally they may resist because of the academic environment and independent nature of academic work (Ayers, 2004; Kenny, 2004; Wolcott, 1993; Wolcott and Betts, 1999).

That academics have not developed these skills could have an effect on the quality of their courses. A study of 1200 business students found that the students ranked technology-based learning third after traditional and personalised modes of learning (Hunt, Thomas and Eagle, 2002). A reason for this may be the underdeveloped, poor quality or inappropriate online courses they encounter - for example Neal (2003) claims that the "learner experience is declining" because the academics don't "understand the participant experience". Conversely a researcher in a longitudinal study wonders whether student results using e-learning have improved over time because of the "improvement in staff competency with respect to design and delivery" (Ladyshewsky, 2004).
This paper attempts to develop a framework identifying all the expertise that instructors need to acquire to teach effectively online. The framework (Figure 1) is centred round the subject knowledge and traditional teaching expertise that is expected of a professional teacher. Around this we outline a ring of additional skills that are needed for online teaching. These additional skills are sub-divided and expanded into groups of more specific skills.

Figure 1. A framework of additional skills needed when teaching online

2. Computer Skills

At the top of the framework are the computer skills. The development and implementation of new technologies has meant instructors have to face the challenge of this new technology or be left behind. Fortunately technology is becoming ubiquitous and easier to use, so this is less challenging for non technical people (Ayers, 2004).

Whilst many skills, in particular word processing, are taken for granted, there are many others that have to be gained. Some of these skills include:

- **Keyboard shortcuts**: Using key combinations to accomplish specific tasks speeds up your work.
- **Typing**: Academics spend more of their time typing when teaching online therefore it is important that they can type quickly and accurately.
- **File management and searching**: Academics have many files to manage today; this is exacerbated when teaching online. It is important to develop file management skills including folder and file naming conventions.
- **VLE software administration**: There is a whole new set of skills to learn when your institution chooses, or decides to switch VLE.
- **Data manipulation**: Academics often have to transfer material from one software program to another. It is important to know the most efficient manner, depending on the nature of the material (for example copying class lists from a VLE to Excel).
- **Data Management**: The current abundance of information that academics are expected to manage requires them to learn even more software packages. For example using Endnote or Web Browser bookmarks or favourites to store references and Web addresses.

3. Administrative Skills

It is often recognised that a move to online teaching has also resulted in an increased administration burden for academic staff. We need to practice time saving tips and tricks to counteract any increased workload. The skills that it is necessary to develop include:
- **Email management:** It is important that everyone in today's world learns to deal with overloaded email inboxes. For example using anti-Junk mail software, setting up automatic filters, mailing lists or searching or sorting email folders. This is particularly important when teaching online since much of the communication with students will take place via email.

- **Reuse of resources:** Online teaching is perfect for reusing materials since digital files can be easily copied and online courses often provide flexible learning where there are multiple streams of information. For example copying and repurposing information between course notes, PowerPoint files, weekly email newsletters, FAQs, website announcements and even discussion forum posts. In addition, resources can be shared with other academics through the use of Learning Object repositories.

- **VLE administration time saving strategies:** Often the VLE software can be cumbersome to use with many confirmation buttons to click. This is especially annoying when accessing websites since there may be an added delay while the pages download. Time can be saved through a variety of approaches including tools provided within the VLE or 3rd party sources. For example using a clean out the Blackboard drop box JavaScript bookmarklet (Carter-Tod, n/d), or using Respondus to copy quizzes between different quiz generator software formats.

### 4. Website Design Skills

At the lower part of the framework circle website design skills are incorporated. An online course is (usually) based around a website and as such, it should follow the rules of good web design to be successful. The skills that it is necessary to develop include:

- **Site organization:** It is important that a course website is organised well (most often into a hierarchy of topics) so that it is easy for students to find information on the site. Academics need to learn how to identify a student-centred structure, create well-named folders and move content between folders.

- **Writing for the Web:** Users of Web sites don't like to read from the screen, preferring to scan pages looking for keywords (Morkes and Nielsen, 1997). It is therefore important to create content that works well on the screen - examples include the use of headings and sub-headings, concise writing in appropriate chunks, one idea per paragraph, the use of emphasised text and bold text to highlight key words and phrases, the use of an easy to read font size and style and the use of bulleted or numbered lists.

- **Text formatting:** After creating the content, academics need to have the technical skills to apply formatting to their text. This could be through the use of a mark-up language such as HTML or through the use of text formatting toolbars supplied by the VLE. It may also be useful to utilise templates.

- **Graphic design:** Academics who create course Web sites need to follow standard graphic design practices including use of consistent colours to increase student recognition of standard content blocks - at the same time avoiding clashing and over-saturated colours, in favour of harmonious and muted colours that are easy on the eye.

- **Incorporating images:** Academics also have to learn to add images to their Web pages. While the VLE software can accomplish this, the academic may have to modify the output of the VLE to achieve an effective Web page.

- **Linking to resources:** Academics also have to learn to add links to their Web pages. It is important to be able to add links to external Web sites as well as links within a course Web site. While the VLE software can accomplish this, the academic may have to modify the output of the VLE to achieve an effective Web page, for example adding "deep links" or "cross links" directly to specific resources.

### 5. Online Pedagogical Skills

There are a range of different new skills that academics must learn in order to teach effectively online. These include:

- **Online community building:** Academics have to learn how to welcome, encourage, support and control students in an online environment. They also have
to encourage intra-class participation (for example, introducing and connecting students).

- **Designing online activities:** Academics need to be able to design learning activities that can effectively be carried out online. These e-tivities (Salmon, 2000) range from discussions, reflective diaries, resource discovery and description, to animation and simulation. Creating these learning objects may involve learning new software packages.

- **Discussion forum:** There is a wide range of skills to learn to facilitate an effective online discussion. These include discussion activity design and set-up, discussion introduction and close-down, discussion moderation, and assessment of contributions.

- **Information literacy:** Academics have to develop skills to help students "to locate, evaluate, manage and use information from a range of sources for problem solving, decision making and research." (Bruce and Candy, 1995).

6. Discussion/Recommendations

As academics struggle to change traditional teaching methods to e-learning, more research into what students actually want is needed. Academics need to recognise opportunities to save time and stress. In addition we need to change the campus culture:

- Internal and external training should be offered to instructors.
- Time allowances for academics to participate in training courses or in course development.
- Institutions should provide templates and best-practice resource kits to instructors.
- Institutions should conduct quality assurance of online courses.
- Communities of practice should be encouraged, both inter- and intra-institution.
- Opportunities for sharing and re-using resources should be encouraged, such as learning object repositories.
- Rewards for academics who contribute to learning object repositories, communities of practice or best-practice guidelines.

Teamwork is imperative (Yetton et al, 1997). The downward side of the clock face is the easiest whilst the ascent toward the apex involving online pedagogy is more challenging. Understanding learner demographics and characteristics that impact online learning will help institutions make this a reality (Neal, 2003).

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