

WOLF (WOLVERHAMPTON ONLINE LEARNING FRAMEWORK)

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A specification for the setting up of a learning environment.

The rationale for the creation of an online learning infrastructure is clearly multi-faceted. Infrastructure suggests connections, detail and possibly a fixed topology, but is this reasonable within the context of teaching and learning?

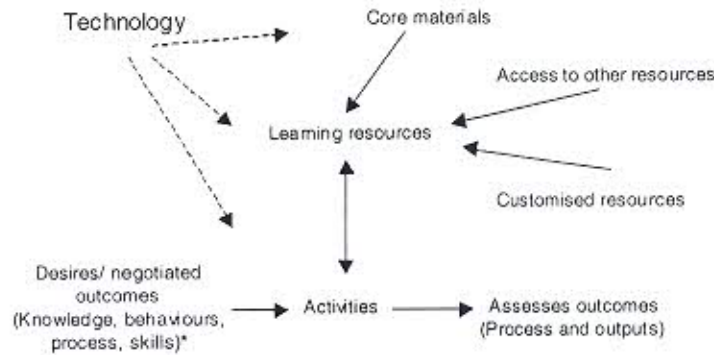
The infrastructure within Wolverhampton is complex. It has a large estate with multi campus cultures and traditions. The delivery mechanisms are based on a modular approach, often with multiple iterations, and there is a high percentage of mature and part-time students. Consistency of approach to delivery is paramount, but very few flexible learning environments existed. It was from this premise that our bespoke solution, WOLF, was developed – answering a need to embark upon a radical appraisal of all learning and teaching aspects.

WOLF is primarily designed to SUPPORT existing delivery mechanisms and not replace them. It is for this reason that the configuration of WOLF is primarily for on site use. This is particularly important when high bandwidth materials such as video and audio streaming are used.

The availability of technological environments within the University enabled rapid progress to be made, i.e. multi-site delivery required streaming media, which used the fast broadband campus technology already in existence.

The major concerns locally were the nature of existing legacy systems within the University and their interaction with any new major application or technology. Whilst student administration was not considered to be the major driver, the consequences of ad hoc imports from student records, finance and personnel would have been a severe impediment to progress. The task group at Wolverhampton considered that the major driver for a learner supported technology environment must be within the pedagogy, not driven by the technology, although the hardware platform was assumed to be available and at the required level of interactivity.

At the simplest level we needed to consider the process model, adapted from a previous model developed at the ALT Conference 1999.



* this is the first issue with both staff and students. The activities are then developed as a consequence of the outcomes. Learning resource development does not start with the technology.

Higher education, like other sectors of society, has undergone a technological revolution. Today's students often arrive at college or university with considerable experience of computer use. As well as the university library, they want access to the resources of the Internet and World Wide Web. They communicate using email, electronic chat rooms and personal Web pages. They are expected to word process their assignments and may well be familiar with spreadsheets, databases, desk top publishing and presentation software, either from school or from work experience. Rising participation in higher education, especially among non-traditional students, has placed a new emphasis on individual needs and learning styles at a time when classes are actually growing larger.

In line with these changes and expectations Wolverhampton, via a research project called BroadNet (an advanced technology infrastructure to support SMEs in the black country), identified the ability and opportunity to utilise this same platform to deliver training, learning and teaching to the core BroadNet members (SMEs) and the wider University. The initial developments were focused on learners studying largely in isolation, with off site delivery of material via a web browser. Initially, interaction between tutors and students was limited to bulletin board systems. As it developed, academic staff were encouraged to suggest facilities for the environment which they felt would enhance the learning experience for students.

The main driver, pedagogy and learning, has already been espoused, but is based on the need to create a shift away from the 'transmission' model of lecture-based courses to one where students take greater responsibility for their learning, i.e. independent, self-directed learning. However, lectures do have a role in motivating students and maintaining a sense of common purpose, and increasingly, lecturers are deploying student-centred activities that encourage them to reflect on the lecture content and provide the opportunity to refresh their concentration.

Online Learning

Implementing an online learning environment should not be a daunting challenge. However, the planning process for a full-scale implementation involved not only decisions about technology and infrastructure, but financial models, curriculum design and assessment, all of which required lengthy reviews and input.

Technology based learning is NOT just putting the lecturer in the machines. Learning is about retention – we needed robust mental models and the infrastructure to support such models.

Too many IT based learning systems focused on the technology being able to do 'clever' things! Whilst this was a requirement, it was an assumption for WOLF, and a basic tenet for

developing a bespoke platform. We were clear within Schools that the simple transfer of teaching and learning to a computer in a form already used in the classroom, which then expected magical improvements in learning, could only engender disappointment at the results.

Teaching and Learning Strategies

The emphasis within WOLF is on developing online support, independent motivation and active facilitation NOT wholesale replacement of academic input. Biggs and Telfer (1987) suggest that the following kinds of teaching foster deep approaches:

- an appropriate motivational context
- a high degree of learning activity
- interaction with others, both peers and teachers
- and a well-structured knowledge base.

This is further reinforced by Laurillard (1993) who suggests a number of key aspects of learning that can be used in any discussion about teaching strategies. These aspects are:

APPREHENDING STRUCTURE. Students construct meaning as they read, listen, act and reflect on the subject content. However, as Laurillard points out "Meaning is given through structure"(p51) and it is therefore essential that students are able to interpret the structure of any discourse before they can construct the meaning that we have previously seen to be so crucial to understanding. Students adopting the surface approach to learning would fail to do this, as they focus on memorising a number of phrases and points for later reproduction.

INTEGRATING PARTS. Students need to be able to integrate the signs of knowledge such as language, symbols and diagrams with what is signified by them.

ACTING ON THE WORLD. There are few teachers who attempt to teach without asking students to do something, whether it be laboratory sessions or essay writing. Students are asked to engage in some form of activity which, when integrated with other activities, assist in understanding of content.

USING FEEDBACK. Actions such as those mentioned above are futile for student learning, unless feedback on individual actions is available.

REFLECTING ON GOALS-ACTION-FEEDBACK. Learners interpret and understand reality as they make links between each of the above aspects by reflecting on the goals of learning, actions taken, and the results of those actions.

It was on this basis that WOLF has developed, 'it' assumed the student to be a reflective learner (Kolb cycle) and the emphasis with the technology is on facilitating the movement around the cycle.

The development was based on identified and future, perceived and anticipated needs of all the potential WOLF community – developers, students and those responsible for the infrastructure.

ICT Project WOLF Functional Specification

| WOLF Features | Teaching Materials | Tutoring & Mentoring | Learning Support | User Tools | Tutor Admin | System Requirements |
|-------------------------|---|--|--|--|---|---|
| Overview | Course Structured Course Materials | Tools Communication & Collaboration | Search Learning Support Facilities | My Folder Module Related Tools | Tutor Module Administration | <ul style="list-style-type: none"> • For Developers • For Users |
| Summary of features | .course notes .presentations .case studies .activities | .calculator .chat & forum .email tutor .events/notices .references | .content .library .email .phone | .bookmarks .check progress .notepad .personal diary .email | Tools for: .scheduling events .tracking progress .structuring module | <ul style="list-style-type: none"> • Infrastructure Implications |
| Feature Functionality | | | | | | Enhancements |
| Technical Functionality | | | | | | Developments |

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graph TD
    WG[Wolf Guide] --> T[Trainer]
    WG --> SS[Support Staff]
    WG --> D[Developer]
    WG --> U[User]
  
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The last 2 rows are currently being developed and will feature as a separate entity

General Course Content

Teaching Materials are displayed in the main frame of the screen to form the basic structure of reference material for a module. The module notes are typically arranged in a hierarchical structure with levels of module, units, sections, subsections and pages. Tools have been developed to semi-automate converting existing word processed documents into WOLF HTML pages. These tools help to speed up the creation of WOLF modules to enable academics to focus on the pedagogy.

The inclusion of other media such as images, video, sound and animation within the notes is possible in WOLF, adding topical interest to a screen of text.

Case Studies, Presentations and Activities

Case studies, real or fictitious, may be used to illustrate key topics. With the wealth of material available via the Internet, embedding links to reliable external sites can make the latest information pertinent to particular cases easily accessible from within the learning environment.

Presentations consist of a sequence of screens, effectively a slide-show of material. The student has controls to proceed through the slide-show at their own speed. Presentations may include a voice-over soundtrack to complement the content.

Using presentations can be an effective accompaniment to text based Notes, a useful recap of lecture presentations, or a complement to certain aspects of the material which require more detailed presentation.

Activities provide a way for the student to assess their own understanding of course material. A number of formats are possible, including model answer, multiple choice, fill in the blank and true/false questions.

On submitting their answers, the students receive immediate on-screen feedback in the form of suggested or correct answers, from which they may ascertain their progress within the material.

The Standard Wolf Interface. The facilities across the top of the screen are common to all modules. The Course Notes, Case Studies and Activities are specific to the module.

Tutoring and Mentoring Communication Tools

The WOLF interface is designed to be much more than a delivery mechanism for distributing course notes to students. There are a range of tools built into the system to allow students to get the maximum benefit from the online learning environment through communication, collaboration and the posting of module-specific notices and events. A key part of any learning program is discussion of topics in the subject area. Whether the discussion takes place in a tutorial, over coffee or over the Internet, students should be encouraged to debate key areas of their subject.

To facilitate discussion several communication features have been incorporated into the WOLF learning environment:

- Forum
- Chat
- Pager
- E-mail Tutor
- E-mail Class

The screenshot shows a web browser window titled 'WOLF - Introduction To Strategic Management - Microsoft Internet Explorer'. The page header includes the University of Wolverhampton logo and the text 'University of Wolverhampton Wolverhampton Business School Introduction To Strategic Management'. A 'Log off' link is visible in the top right. Below the header is a navigation bar with icons for 'Course', 'Tools', 'Search', 'My Folder', 'Help', 'Back', and 'Tutor'. On the left side, there is a vertical menu with links to 'Calculator', 'Chat', 'Email Tutor', 'Email Class', 'E-Minders', 'Events', 'Forum', 'Noticeboard', 'Pager', 'Profiles', 'References', 'Group Folder', 'Shared', and 'Bookmarks'. The main content area displays a summary for 'Introduction To Strategic Management' with a table showing 15 Messages, 5 Threads, 1 Current Page, and 2 Pages. Below this is a 'List by Threads' section with a table of forum posts.

| Subject | ID | Username | Date |
|---------------------------------------|----------|--------------|------------|
| Cellnet Discussion part 2 | bu1812 | I.A. Mckeown | 12-10-1999 |
| Re: Cellnet Discussion part 2 | b9921405 | E.J. Lenegan | 18-10-1999 |
| Re: Re: Cellnet Discussion part 2 | b9903834 | M.J. Harding | 20-10-1999 |
| Re: Re: Re: Cellnet Discussion part 2 | b9903834 | M.J. Harding | 21-10-1999 |
| Cellnet Discussion | bu1812 | I.A. Mckeown | 12-10-1999 |
| Re: Cellnet Discussion | b9921405 | E.J. Lenegan | 17-10-1999 |
| Re: Re: Cellnet Discussion | b9903794 | H.D. Lewis | 18-10-1999 |
| Re: Re: Re: Cellnet Discussion | b9903834 | M.J. Harding | 19-10-1999 |
| Re: Cellnet Discussion | b9903826 | M.Ahmedi | 25-10-1999 |
| Test | b9903834 | M.J. Harding | 04-10-1999 |
| Hello - anybody out there | b9903834 | M.J. Harding | 01-10-1999 |
| Re: Hello - anybody out there | b9903794 | H.D. Lewis | 05-10-1999 |

Clicking on the Tools option lists the available facilities. When selected the tools appear in either the main window or in a separate pop-up window.

Forum

To enable discussion, the Forum allows students and staff to send messages which can be read by anyone with access to the module.

Forum users may respond to existing messages or create entirely new topics for discussion - in this way the discussion evolves. Students can join in with the Forum discussions at any point in time.

Messages remain in the Forum until an administrator removes them. With tutors monitoring the discussion, debate can be guided to keep subjects relevant to the module's progression.

Chat

Chat creates a live 'virtual' meeting. When a user logs into Chat they see messages from other users seconds after they are typed and sent. Chat messages are listed in order, the last message sent appearing at the top of the list. Messages can be sent to all users or just to a participant selected by name. Additional Chat areas can be created during a session, enabling small groups of participants to move from the main Chat area to a topic specific Chat area.

Chat is 'live' in nature, so messages are not saved - as soon as a user leaves the Chat area all messages are lost from their view.

Pager

The pager facility enables anyone logged into the system to send a text message to another user. The message will appear on the recipient's screen in a pop-up window. The pager is an ideal tool for tutors to contact students with informal messages and can be used to good effect to set up a live chat session.

E-mail Tutor

This tool enables students to e-mail a module tutor from within the learning environment. The user and the tutor's e-mail addresses are automatically inserted and a default title is included. If there is more than one tutor involved in the course the user may select the correct tutor from a drop down list.

If the student is involved in group work there are facilities to enable them to copy ('CC' or 'BCC') the email message to other group members and the tutor.

E-mail Class

This option has been created to allow global emailing of the entire class.

Group Folder

The Group Folder is designed to be a repository for materials for the group. Both students and tutors can upload and download files within the Group Folder area. Materials uploaded can only be removed by the person who uploaded them or a tutor. Generally tutors use the facility to distribute notes, case studies and other printed materials.

Shared Bookmarks

The Shared Bookmarks facility enables anyone to upload a web page reference. When a new link is added, the originators name is listed next to the link. This ensures that credit is given to the person who has found the resource and that only suitable links are added.

Module Information Tools

To convey module related information to students, three features have been incorporated into WOLF:

- Events Calendar
- Noticeboard
- E-Minders

