

# MonAtar: The Monash Unit Description Avatar

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**Abstract:** In this paper we describe the Monash Unit Description Avatar, a web-based piece of software to support the quality assurance process for teaching units. While the avatar was initially developed to support just the initial development and approval process, we show in this paper how it can form the basis for a continuous cycle of improvement.

## Introduction

In this paper we describe the Monash Unit Description Avatar, a web-based piece of software to support the quality assurance process for teaching units<sup>1</sup> within the Faculty of Information technology at Monash University. Two important principles were followed in the development of this software, the first academic, the second technical:

- 1) responsibility for unit development and documentation should rest with the academic charged with the teaching responsibility for the unit.
- 2) there should be a single master repository for all unit descriptions of units maintained by the faculty.

While the avatar was initially developed to support just the initial development and approval process, we show in this paper how it can form the basis for a continuous cycle of improvement, using the ADRI quality audit cycle (Approach, Deployment, Results, Improvement) now encouraged by the Australian University Quality Agency [1].

## Background

### The Early Quality Assurance Process

This project arose out of the author's experiences on the university's Education Committee. Following the Australian Commonwealth Government's Quality Round initiatives in the early 1990s, the Education Committee was charged by Academic Board to institute a process that would oversee the introduction of all new courses and units. This process required faculties to submit descriptions of new courses and units on a Microsoft Word template, and these documents would then be reviewed by a rotating panel of other members of the Education Committee, who were external to the faculty or faculties proposing the course or unit.

The intent behind this process was to ensure that faculties addressed both pedagogic and logistic issues in proposing new teaching. Where deficiencies were identified, the faculty would be required to rectify them before approval to offer the new proposal was given. There were several difficulties identified with this process, which caused a reevaluation of the process.

Firstly, the process was very time consuming for members of the evaluation panels. They were also, by the very panel composition mechanism, operating outside their expertise, although it was argued that the vetting process was more about assessing the educational values of the proposals than the academic merits. Hence reviews tended to become more superficial over time as the demands of new (and significantly revised) proposals escalated.

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<sup>1</sup> "unit" is a synonym for "subject" and denotes the smallest unit of enrolment for a student. At Monash, most full time students study 8 units weighted at 6 credit points for a total full time load of 48 credit points an (academic) year.

Secondly, the process was very difficult to manage. Documents would be circulated by email, and because of their provisional nature, would tend to get modified during and after the evaluations. Maintaining integrity of the documents within the central university secretariat was extremely difficult, to say nothing of the frustration occasioned when a proposal might be being processed by more than one faculty, each of whom would be requesting their own set of revisions, and submitting multiple independently edited versions of proposals! Version control of documents that were maintained by email transmission from one interested party to another was just impossible.

## Revision of the Process

Dissatisfaction with the above process led to a major revision, whereby prime responsibility for unit approval was devolved to the faculties. The reasoning was that this was where discipline specific information resided, and that faculties would be better placed to make their own assessment of logistic and resourcing issues anyway. Faculties would also be free to set up their own processes for approval of units, and management of multiple copies within the faculty could be more tractable.

Courses were not entirely handed over to faculties. Since there was more scope for cross faculty involvement at course level, some central approval mechanisms were retained. These applied to various categories of course type, such as off-shore courses, cross-faculty and double degree course, and courses that changed the university's strategic directions.

## The Information Technology Approach

At about the same time, the Faculty of Information Technology had been asked to nominate an area of special interest that would explore and extend the university's Learning and Teaching Policy [2]. The area nominated by the faculty was the exploration of document technologies as a vehicle not only to bring technology to bear upon the problems outlined above, but also to exploit the faculty's own area of expertise in the learning and teaching context [3].

Part of that initiative was to develop automatic processing of quality assurance documents, for which a web-based system was proposed. This would allow firstly, a single authoritative source of all documents, thus addressing the version control problem outlined above, and secondly, would allow editing of such documents by anyone who authenticated themselves to the web server, thus putting control of the document content into the hands of those academics who had the ultimate responsibility for delivery of the unit. These are precisely the principles outlined above in the introduction. The initial implementation was targetted to address only unit approvals, as there were still some global issues relating to course approval as outlined above.

## Description

The *avatar*<sup>2</sup> is an automated unit description management tool, as well as a quality assurance tool. It can also be seen as a powerful pedagogic tool, as it constrains the form and content of the unit description itself.

The unit description is derived from the document templates originally in use at education committee level, which were intended to address a whole range of pedagogic issues. The primary ones are the Unit Objectives and Unit Content, together with statements about Teaching and Assessment Methods. Unit Objectives are seen as essential defining parameters of the unit, and define the educational outcomes for a student completing the unit. Unit Content defines the scope of the actual discipline based material, and is often seen as an important definition of the unit for credit recognition purposes. The Teaching and Assessment Methods define how the unit is to be delivered and how the students' attainment of the Unit Objectives is to be measured, and are required to cross reference the unit objectives. This cross referencing forces the unit designer to address the process whereby teaching is presumed to achieve its desired outcomes.

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<sup>2</sup> The name *avatar* means "the descent of a deity to earth in an incarnate form" (Oxford), and derives from Hindu mythology. The analogy is the devolvement of authority from the (deity like) University Education Committee down through the faculty to the individual academic.

The unit description also documents other more logistic issues, such as campus and semester of offering, date of introduction, student workloads, resource requirements and approval status.

The opportunity was taken in the development of the avatar to change the document format from a Word template to XML, a markup notation (as opposed to Word's "What You See Is What You Get" philosophy). While XML is less user-friendly than Word, it does preserve document structure, which allows for a wide range of automatic processing options. XML is also an open standard, which admits of handling across a wide range of computer platforms, an advantage not enjoyed by Word documents.

The primary interface to the avatar is a web page that presents a formatted view of the document, together with user clickable buttons that allow the direct editing of the content of each section of the document. This is known as the **Edit Page**, and an example is shown in figure 1.

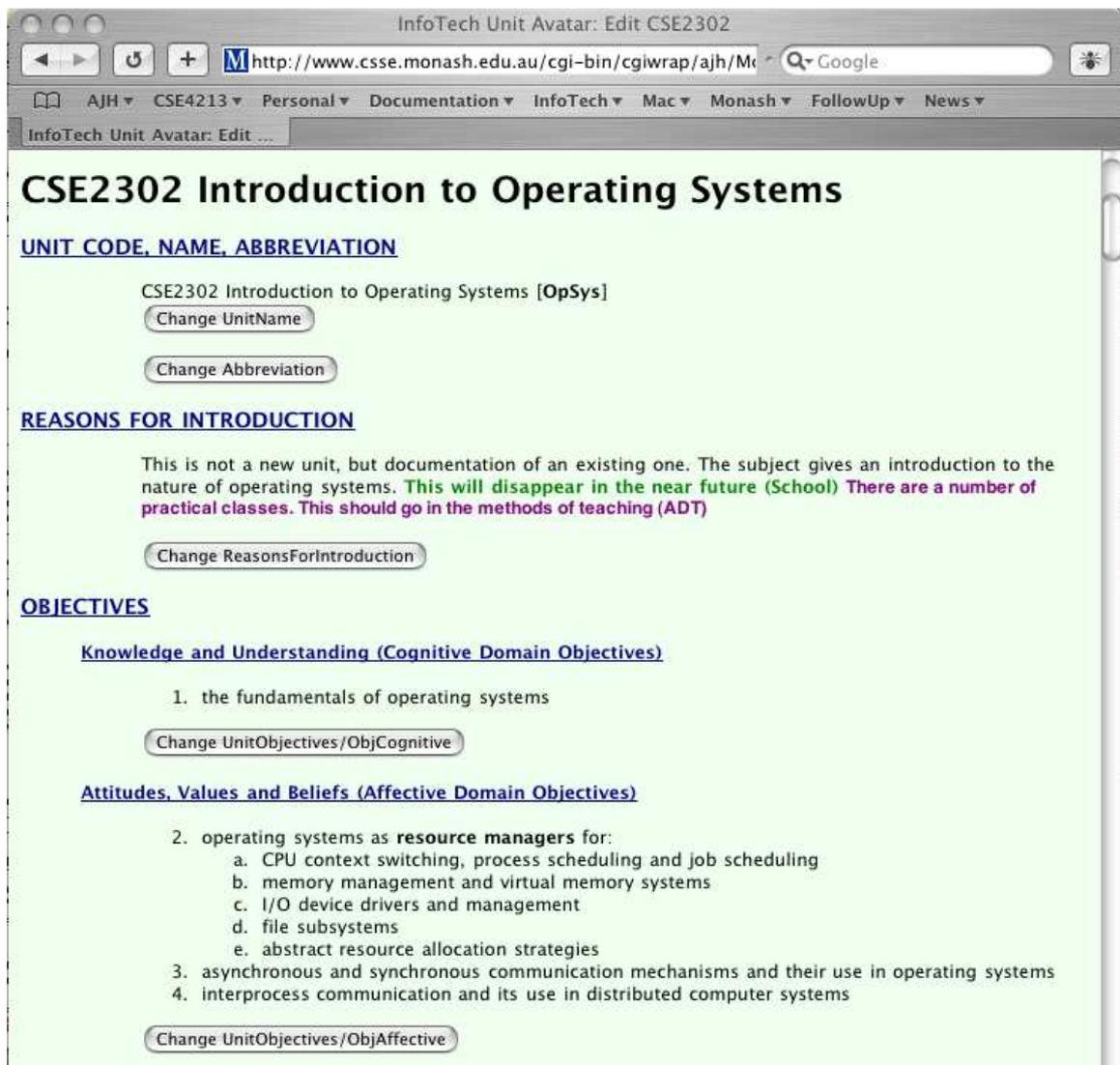


Figure 1: (portion of) The Edit Window of the Avatar

## 4 Usage

Before a user can interact with the avatar, they need to authenticate themselves. This is done through an interface to the Monash Directory Service (MDS), an LDAP (Lightweight Directory Access Protocol [4]) based directory of all staff and students. An entry in the MDS, retrieved through entering a username and password, returns data about who the user is and what status they have, thus authorizing a range of possible avatar actions for that user.

The approach taken was an open one. Any user with an entry within MDS is notionally able to edit any unit description. However there is an audit trail, and all edited versions are saved, thus allowing roll back in the event of an inappropriate edit operation. To date, this approach has been quite adequate, since the avatar has only been used within the one faculty: however, plans to extend the operation of the avatar to other faculties will modify this approach, since other faculties have indicated that they, at least, would prefer tighter access.

Incidentally, it is worth noting here that this open approach has allowed other faculties to evaluate the operation of the avatar to determine its suitability for their approval processes. A tighter initial access policy would have limited this.

The **Authentication Page** is shown below in figure 2.



**Figure 2:** Authentication Page

Correct completion of the Authentication Page brings the user to the avatar Home Page, shown below in figure 3. There is one text entry field to allow the user to enter a desired unit code for the unit upon which he or she wishes to work. Other buttons on this page allow the user a range of options, depending upon whether they are staff or students (this distinction is available in the MDS entry). Staff have a full range of view and edit options, while students are restricted to view operations only (but see also the Review function, discussed below). The operations are grouped into two classes, **USER** and **MANAGEMENT** functions, reflecting the fact that most users would only interact with operations in the first group. The second group is available to all staff, but is biased towards the operations required for the quality assurance process. The Management functions are described in a later section.

The **REVIEW Unit** takes the user to a review process, described in detail below.

The **VIEW Descriptor** is the base level operation, used for all non-authenticated uses of the avatar, and is available to all classes of users. It gives a view very similar to that of the Edit Page, with the exception that no edit buttons are displayed, and hence no write access is possible. This view is also that used for printing or viewing copies of Unit Descriptions, required for some steps of the approval process. Previously most users accessed this page through hard copies, but as electronic meetings have developed across the faculty, hard copy is less and less required.

The **EDIT Existing Description** button takes the user to the Edit Page, shown previously in figure 1. Details are described below.

The **CREATE New Description** button checks that there is currently no unit description for the nominated unit, and creates an editable instance based upon a template. This template is preloaded with useful information to assist the author of a new unit description.

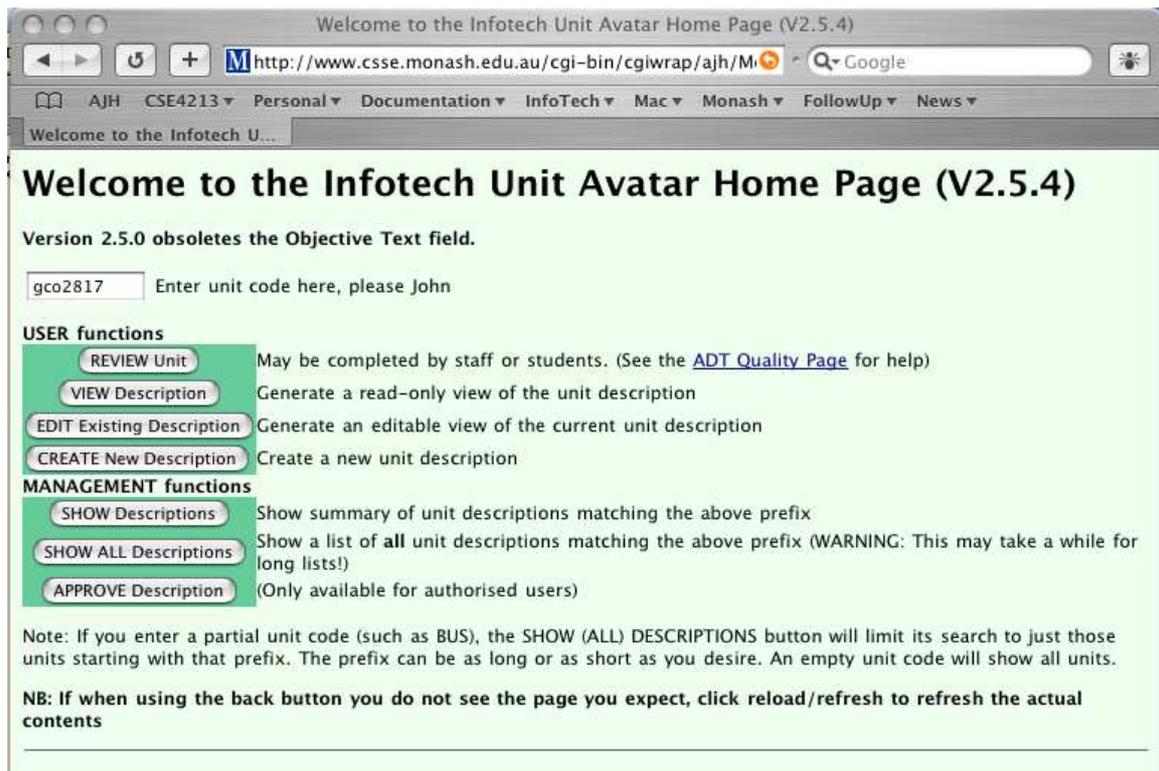


Figure 3: Home Page

It was mentioned above that the avatar does make a distinction between view versus edit access, but that the presentational views of these minimize the distinction. The reason for this was the *Principle of Least Surprise* [6], which requires that users navigating between the two should see as consistent a view as possible. This is enforced by the rendering technique used. Both views are generated by the same style sheet, parameterised by a *ViewOrEdit* flag (passed in on each call of the avatar), which turns on/off the generation of the edit buttons.

One additional feature of the edit page is the fact that it can only be reached via a page that requires the user to enter a version comment. This comment is intended to capture the reasons the user wishes to edit the page, and is presented initially to ensure that editing can only take place when a non-empty version comment has been entered. While no parsing or other interpretation is made of this comment, experience has shown that this discipline is sufficient to make users think about why they are editing the document, and trivial or misleading comments are few. The user is also presented with this comment on each edit page, and has the opportunity to update the comment before finally quitting the page.

Also on each edit page is a button to select one of two levels of expertise: *Novice* and *Expert*. Novice users see edit views in plain text, with a limited range of markup options, while Expert editors can edit the document with its full XML range of markup. The reason for this distinction is because the majority of users are quite unconcerned with XML markup, and want to focus on content.

When an edit button is clicked, an **Update Page** is generated, where the text of the field is presented to the user in an alterable text field, marked up with some limited RTF style markup for Novice users, and with the full XML for Expert users. In Novice mode, text layout is also used to drive the markup. For example, a blank line will generate paragraph markers. When the user is satisfied with any alterations made to the field, and clicks the *Change* button, the text is converted back to XML (if a Novice user), and replaces the original field in the document. A view of an Update Page in Novice mode is shown in figure 4 (the rendered version of which is shown in figure 1).

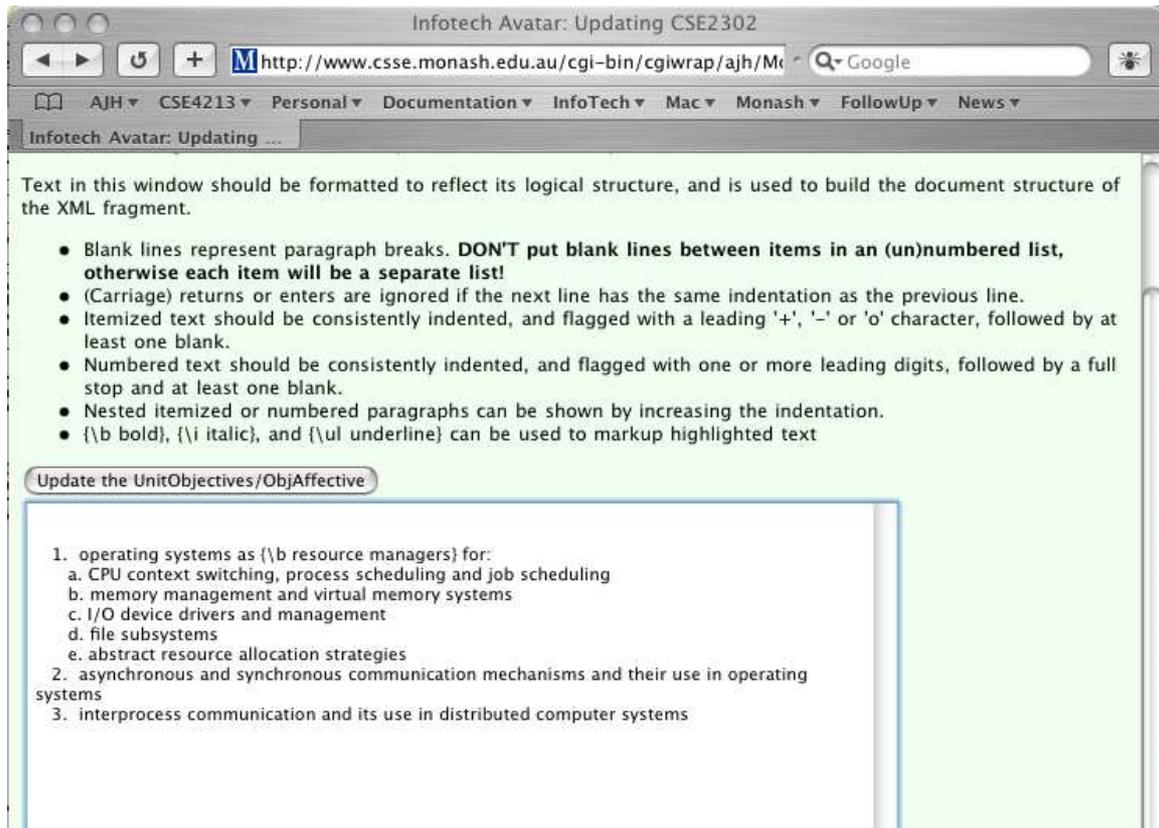


Figure 4: A section of an Update Page

Nearly all fields of a unit description can be edited in this way. Once a user is satisfied with the edits that they have made, they have a choice as to whether to **Save** or **Submit** the document. Saving timestamps the document and archives it in the repository. It can be subsequently retrieved and edited further. Submitting the document starts the formal approval process, described next.

## 5 Administrative

The Quality Assurance process requires approval of new or revised unit descriptions by a number of committees before it is submitted to Faculty Board for final sign off, after which it is formally approved for delivery to students. The two main committees are the School and Faculty Education Committees. Each of the education committee processes are semi-automatic: upon clicking the Submit button in the Edit Page, an email is sent to all interested parties with the URL of the just-submitted document, and they can then peruse the document at a suitable (asynchronous) time. This on-line process gives a maximum interaction time for staff who may wish to have input to the description, and avoids much of the cascading delays that characterised the previous process. At this point further edits may be made by interested parties to update or correct supplied information, and an example of such evaluative comments may be seen in figure 1, where, under *REASONS FOR INTRODUCTION*, comments by the School and ADT (Associate Dean Teaching) have been added.

Meetings of the education committees are held electronically in a variety of ways:

- The convenor may ask members of the committee to view the submitted URLs, and either return comments directly to him, or markup the document and forward the revised URL.
- Members of the committee may meet face to face (or over video conference links) and discuss the agenda directly. Where members have on-line access (meeting rooms have wireless interfaces to the university's intranet), the agenda links directly to the submitted unit URLs, and hence navigation through the agenda can be done entirely electronically. Documents have even be updated directly during the course of such meetings!

- Other electronic forms of group discussion (such as NetMeeting [5]), could be used to advantage here, particularly with remote campus meetings.

To allow the construction of the agenda papers for these meetings, a **Unit Description Summary Page** can be accessed from the Management options on the Home Page. A sample of the Summary Page is shown in figure 5 below.

Unit	Times	Earliest Save	Latest Save	Earliest Submit	Latest Submit
BUS2040	1	Not Saved	Not Saved	<a href="#">01 May 15:09</a>	<a href="#">01 May 15:09</a>
CPE1006	2	<a href="#">11 Apr 18:00</a>	<a href="#">11 Apr 18:00</a>	<a href="#">17 Apr 17:02</a>	<a href="#">17 Apr 17:02</a>
CPE3007	5	<a href="#">15 Apr 11:40</a>	<a href="#">15 Apr 14:36</a>	<a href="#">16 Apr 11:44</a>	<a href="#">17 Apr 17:04</a>
CPE3018	4	<a href="#">08 Apr 15:52</a>	<a href="#">17 Apr 14:55</a>	<a href="#">08 Apr 16:05</a>	<a href="#">17 Apr 14:56</a>
CPE3100	2	<a href="#">24 Apr 15:48</a>	<a href="#">28 Apr 15:07</a>	Not Submitted	Not Submitted
CPE9001	3	<a href="#">05 May 16:36</a>	<a href="#">05 May 16:36</a>	<a href="#">02 Apr 11:38</a>	<a href="#">04 Apr 14:55</a>
CPE9005	7	<a href="#">15 Apr 14:16</a>	<a href="#">17 Apr 17:13</a>	<a href="#">17 Apr 11:27</a>	<a href="#">17 Apr 11:36</a>
CSE3030	4	<a href="#">08 Apr 20:39</a>	<a href="#">15 Apr 16:19</a>	Not Submitted	Not Submitted
CSE3141	3	<a href="#">14 Apr 10:20</a>	<a href="#">28 Apr 10:56</a>	<a href="#">28 Apr 00:10</a>	<a href="#">28 Apr 00:10</a>
CSE3475	2	<a href="#">14 Apr 10:56</a>	<a href="#">14 Apr 10:56</a>	<a href="#">14 Apr 11:56</a>	<a href="#">14 Apr 11:56</a>
CSE4213	1	<a href="#">01 May 22:59</a>	<a href="#">01 May 22:59</a>	Not Submitted	Not Submitted
CSE4890	2	<a href="#">30 Apr 14:14</a>	<a href="#">30 Apr 14:15</a>	Not Submitted	Not Submitted
CSE9020	2	<a href="#">29 Apr 18:41</a>	<a href="#">29 Apr 18:41</a>	<a href="#">29 Apr 18:42</a>	<a href="#">29 Apr 18:42</a>
GCO1063	2	<a href="#">20 Apr 13:44</a>	<a href="#">20 Apr 13:44</a>	<a href="#">20 Apr 13:24</a>	<a href="#">20 Apr 13:24</a>
GCO1810	2	<a href="#">20 Apr 13:43</a>	<a href="#">20 Apr 13:43</a>	<a href="#">20 Apr 13:42</a>	<a href="#">20 Apr 13:42</a>

Figure 5: Submissions Page

The summary page can be used to show what unit descriptions should be included in any particular education committee agenda. Show is a complete faculty listing (no entry in the text box at the head of the page), and by restricting the date field to limit the opening and closing dates for the agenda, the last column shows a list of units submitted for inclusion in that agenda.

By restricting the text box at the head of the page to the appropriate school prefix, a similar list may be extracted for school education committees.

A similar page (not shown) shows all saves and submissions, rather than just the summary first and last entries. This is useful to examine the document audit trail, as it also shows (for a single unit) the differences between any two revisions. In situations of multiple or erroneous updates, this can be used to generate a change list to show the differences between documents within the archive.

The final Management function is the **Approvals Page** (not shown). Since all users are authenticated, approval against a particular committee can be marked by a user so delegated with that authority. Approvals are timestamped in the document, and commit a new version to the database, so again, an audit trail is available to check on when and by whom an approval was made. The Approvals Page is dynamically customised for each user and unit with a separate button for each level of approval. For example, Person X may be a member of both school and faculty education committees, and hence will have two buttons on the approval page for a unit offered by their school: one for school level, and one for faculty level. However, for a unit offered by another school, X would have only the faculty level button showing.

## 6 Review

**Infotech Unit Avatar: Unit Review Page**

**CSE2302** Click this button to submit your review for CSE2302

### Review of CSE2302 Introduction to Operating Systems

*In all of the following questions, you are asked to react with your first impressions, and you are not required to make a considered or unduly long reflection on the issue before clicking a Yes/No answer. The intention is that the review should be quick, and that it provides a way of identifying over time changes in the way the unit is offered.*

*Please undertake the review in a spirit of scholastic reflection. There is no point to giving false or misleading answers.*

(Clicking on any title will display help on that section)

**UNIT CODE and NAME**

CSE2302 Introduction to Operating Systems

**Reviewed By**

John Hurst, (No Staff Info), (No School)  
Reviewed on 20030512:183818  
Relationship between reviewer and unit coordinator: Self  Peer  Student

**UNIT OBJECTIVES**

**Correctness**

Is the statement of objectives for this unit correct? Yes  No

Is the statement of content for this unit correct? Yes  No

**Workloads**

Did the unit workload (for students) correspond to the unit weighting? (6CP = 12 hours per week for one semester, including contact hours) Yes  No

Was the unit workload reasonably spread across the semester? Yes  No

Did the time spent by students reflect the emphases of learning objectives? Yes  No

**Graduate Attributes**

Have the graduate attributes that this unit contributes to been clearly identified? Yes  No

Were students made aware of graduate attributes developed in the unit? Yes  No

Figure 6: (section of) The Review Page

Were this the extent of the avatar's operations, it would be (and has been) useful enough to justify its existence. But in recognition of the wider quality process that governs unit development and delivery, the avatar was extended to include a review function. This review may be undertaken at one or more of the three levels: self, peer, and student.

The review process is built around the unit description document. The underlying principle is one of reflection about the accuracy of the description. Such reflection can occur on the part of the academic responsible for the delivery of the unit (*self* review); another academic not so responsible, but other interested and connected with unit delivery, such as tutors (*peer* review); and finally, by students who have completed the unit (*student* review).

The review for each of the three groups uses a common form, shown in figure 6. Questions are designed to be objective as far as possible, although there is some scope for individual variations and open ended questions. The main purpose of these reviews is to collect quantitative data on how accurate the unit description is, and to promote reflection and reconsideration on the learning achieved by the unit. The review page has only recently been put into operation, and to date there is insufficient data to report on its effectiveness.

## 7 Outcomes

The system described here has now been in operation for over 2 years, and has gained wide acceptance as an essential component of the faculty's unit approval process. After one year of operation, it prompted the development of a university level system known as CUPID. However, the two systems are complementary, rather than conflicting, since the CUPID system is targetted at managing the university level process, while the Avatar is restricted to faculty level processes. In the near future, it is planned to interface the two systems, so that when units are finally approved at the faculty level, there will be an automatic upload of data into the university system.

A further measure of the Avatar's success is the fact that two other faculties are about to adopt its use into their faculty-level approvals process.

But perhaps the most promising outcome of this experiment is the opportunity of closing the ADRI loop (Approach, Deployment, Results, Improvements). While much lip service is often paid to such quality cycles (see also [7]), they do not necessarily generate the desirable behaviour patterns by those academics who have the responsibility to deliver the units! The uptake of the Avatar as a device to document what *ishappening* within units is encouraging, and it is believed that further features such as the review mechanism will encourage the use of this tool at all four stages of the ADRI cycle, and not just the first.

## 8 References

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