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The Delivery and Management of Feedback and
Assessment in an e-Learning Environment

Martin Freney and Denise Wood

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The Delivery and Management of Feedback and Assessment in an e-Learning Environment

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Abstract: It is widely recognised that timely, high quality feedback and assessment information is an essential component of an effective e-learning environment. However, traditional methods for delivering this crucial information have been found to have many limitations. Assessment is a time consuming process when it is done properly and so it significantly impacts upon the workload of academic staff who are already under considerable stress. Assessment and provision of feedback is often a very repetitive task; the use of software to automate assessment and feedback tasks offers the possibility of returning high quality assessment and feedback reports to students in a reduced time frame and in a format that will assist them in developing the attribute of independent, lifelong learning. This paper describes a Computer Assisted Feedback and Assessment System (CAFAS), which has been developed to address the recognised need for an electronic system that enables academic staff to deliver quality feedback and assessment in a timely and efficient manner. The main features of CAFAS include various options for providing feedback: a performance continuum or “rubric” matrix; drop down menus enabling quick entry of commonly used feedback comments; and audio recording of feedback. Summative and formative assessment methods can be used for each assignment. Reporting of class performance via graphs for each assessment criterion and automatic generation of grade and mark lists assist staff with administrative tasks and enables them to analyse teaching and learning performance for a particular assignment. Feedback is provided to students via a secure email account in a highly communicative, graphic and text rich format. The findings from trials and formal evaluation of the efficacy and acceptance of CAFAS are reported in this paper, and the benefits of electronic feedback and assessment systems such as CAFAS as tools for supporting and enhancing the e-learning environment are described.

Keywords: Computer Assisted Feedback and Assessment, Peer Review, Formative Assessment, Summative Assessment, Electronic Feedback, Learning Support, Marking Assistant

Introduction

FEEDBACK AND ASSESSMENT play a major role in a student’s ability to learn (Hounsell, 1997) and provision of high quality feedback demands a substantial amount of time and effort on the part of the teacher. Traditional methods of providing feedback comments and assessment results used in higher education institutions are typically paper based – a “feedback form” is designed, printed and used by the assessment team (tutors) to record hand written information, which is subsequently returned to the student. Unless photocopies are made, there is no record of the feedback given to the student. This paper describes the design of a new eLearning tool, due for release in late 2008, which addresses the identified shortcomings of typical feedback and assessment. This tool, titled “Computer Aided Feedback and Assessment System” (CAFAS), was conceived of and developed in prototype format in 2005 and was trialled in various courses offered by the University of South Australia throughout 2006 and 2007, the results of which have been published elsewhere (Freney and Wood, 2006, 2007; Wood and Freney, 2007). With funding sup-

port provided by the Carrick Institute for Learning and Teaching in Higher Education, the CAFAS prototype has been developed as an open source tool for deployment to the wider higher education community.

The field of computer aided feedback and assessment is relatively new and very few systems are currently available. The literature refers to this field as ‘Computer-Aided Marking’ (Sondergaard & Thomas, 2004) or ‘Computer Assisted Assessment’ (Denton, 2003a, Denton, 2003b). Denton (2003a) outlines four main types of Computer Assisted Assessment: (1) Objective Testing such as multiple choice or text match type questions delivered via the Web; (2) Electronic Submission enabling students presenting work to their tutor via email or threaded discussions that enable students to contribute to an on-line debate; (3) Free Text Analysis including plagiarism detection tools that can be used to check for similarities between electronic text files and software designed to automatically grade free text; and (4) Marking Assistants that can aid in the computation of student marks.

CAFAS fits into the last category of ‘Advanced Marking Assistant’. However, its functions are not



limited to generating written feedback reports (for example, it has the ability to embed audio recordings of feedback). Denton of Liverpool John Moores University has developed a system called 'Electronic Feedback', which utilises Microsoft Office applications (Word, Excel) to provide written feedback and assessment results in text format (Denton, 2003a). 'Mindtrail'® by Mindtrail Software Pty Ltd also returns feedback and assessment results in text format (Cargill, 2001). While these systems have demonstrated many advantages especially in terms of students' learning outcomes (Denton, 2003a; Sondergaard, 2004; Jamieson & Stevens, 2002), ultimately they have failed to become widely accepted in higher education. Indeed Mindtrail Software Pty Ltd was liquidated in 2002, which has curtailed some research studies (Jamieson, 2002; Cargill, 2001). This may be because there are major obstacles for teachers who want to use these systems. Denton's system is difficult to initially install and set up and is limited to one particular assessment regime although recent developments may have overcome these problems. 'Mindtrail' has been criticised for being poorly designed and time consuming to set up (Jamieson, 2002).

There are other CAA systems under development including "ReView" (Thompson, 2007) and "Assessment@yourfingertips" (Campbell, 2005). "ReView", which is under development at the University of Technology Sydney, is a system with similar functionality to the CAFAS "slider" scheme and offers the added feature of enabling students to self and peer assess prior to their teacher moderating their self/peer assessment. "Assessment@yourfingertips" is an online rubric system under development at Edith Cowan University.

In the first section of this paper, the design and development of the soon-to-be released CAFAS tool is described. The features and functionality incorporated in the revised tool are outlined in the next sections of the paper, and in the final section of the paper, plans for the deployment and evaluation of the tool are discussed.

Design and Development

CAFAS has been designed to enable teachers to quickly and easily prepare high quality feedback forms and use these templates online in collaboration with their assessment team. Since the initial trials of the prototype, new functionality has been added to provide teachers with a range of options for communicating important feedback and assessment information to students. The inclusion of Rubric functionality is another important new addition to the capabilities of CAFAS.

Students responded positively to initial trials of the CAFAS prototype (Freney & Wood, 2006; Wood

& Freney, 2007) reporting that they appreciate receiving their feedback and results via email, and, more importantly, that they feel better able to understand how to improve their work.

First and third year students enrolled in the Bachelor of Industrial Design (approx 100 students) and second year students in the Bachelor of Arts (Multimedia Studies) program (approx 200 students) were surveyed via an anonymous online questionnaire instrument. The types of assignments prescribed for these courses included text based reports, technical drawings, and graphics-based website design proposals. In response to the question, "Digital Feedback and Assessment Sheets were emailed to you (PDF file) for each assessment. What are the benefits/disadvantages of this new system for providing feedback and calculating assessment?" students commented:

"This was very beneficial and excellent feedback! Just having a single comment and a score isn't very helpful, but having this digital feedback explains every assessment criteria, as well as percentage weightings, the grade and comments. This feedback should be kept this way".

"Convenience — I can receive them at home instead of going to Uni. Detailed comments were great, so were the graphs".

To help identify the features required in CAFAS to accommodate a wide range of disciplines and institutions, a survey of Australian academics in Teaching and Learning (T&L) leadership roles was conducted. The primary aim of the T&L survey was to obtain information about assessment policy and feedback methods within the various institutions.

A second survey which was distributed to Information Technology (IT) managers in Australian Universities was also conducted. The aim of the IT survey was to establish a preferred software "platform" that would facilitate deployment of CAFAS in other institutions.

T&L Questionnaire

Twenty-four staff in T&L leadership positions were sent the T&L Questionnaire. There were 10 responses (response rate 42%). The key findings from the T&L Questionnaire relate to institutional T&L terminology and information regarding existing assessment practices.

An important finding was that many institutions (25%) commonly use rubrics as the preferred feedback and assessment format and an additional 25% report that rubrics are "growing in use". The typical number of assignments and assessment criteria per assignment were established which assisted with design of the database and user interface. Terminology used by the institutions to refer to aspects of teaching and learning was supplied by respondents,

as were grade/mark schemes, grade descriptors and graduate attributes.

IT Questionnaire

Nineteen staff in IT leadership positions were sent the IT Questionnaire. There were 9 responses (response rate 47%). The IT Questionnaire outlined the proposed programming language and deployment scheme and provided the opportunity for IT respondents to comment in relation to their institution's IT environment. The CAFAS project team sought feedback on the proposed scheme and to gain insight into the various IT environments that are in place throughout Australian tertiary education institutions. The responses revealed a high degree of variability in the IT environments and some respondents expressed concerns about their capacity to implement CAFAS. Catering to the wide variety of environments is a complex issue, however the decision taken by the CAFAS project team aimed to provide a solution that would enable all staff and students to access CAFAS via a central secure server hosted by UniSA.

The solution outlined in the IT questionnaire proposed that CAFAS would be developed using Flex 2, ASP.Net and SQL Server 2005. While not initially envisaged at the time the questionnaires were distributed, Cairngorm micro-architecture, which is a pattern-based framework developed by Adobe for Flex and Flash, has been implemented to support the rich internet application development.

Thirty-three percent of institutions responding to the IT questionnaire were satisfied with this approach; the remainder of respondents expressed concerns about the difficulties it would cause if they were to deploy CAFAS locally on their own servers. There was no consensus on an approach that would suit all institutions.

The strategy subsequently adopted by the project team to accommodate the varying needs of each University has been to support a UniSA host server for an initial period of three years, thereby avoiding the necessity for institutions to install CAFAS on their own servers. A secure log-in system, enabled by a new system called Shibboleth, will enable staff and students from all authenticated institutions to log-in to CAFAS to access their confidential feedback and assessment results. This proposal also addresses the issue of confidentiality, which was a significant concern of respondents to the IT questionnaire.

Institutions concerned about hosting data on the UniSA secure server will still have the option to install CAFAS on their own institution server rather than using the UniSA server. Moreover, the documentation of the programming process and the open-

source programming language used to develop CAFAS makes it possible for other universities to adapt CAFAS to their own IT environment with minimum effort. It is anticipated that the most likely scenario will be that once academics trial the system on the UniSA server they will be in a better position to demonstrate its functionality and benefits within their respective institutions. Institutions will then be better able to decide whether or not they will install CAFAS on their own server or continue to use the UniSA server.

Features and Functionality of CAFAS

It was evident that CAFAS would need a high degree of flexibility to accommodate different terminologies (e.g. course/unit/subject all refer to the same thing) different grading and marking schemes, and different ways of communicating feedback to students. It was also apparent that the criterion-referenced assessment system used by CAFAS was very common to many institutions, so potentially CAFAS has a wide user-base. Since rubrics were also referred to in questionnaire responses as an emerging method of feedback and assessment, the decision was taken to incorporate this functionality into CAFAS. This view is consistent with Owens (2006) who notes that "Rubrics have emerged as evaluation tools that higher education constituents are increasingly exploring."

In terms of IT considerations, it was evident that CAFAS should be developed as a web-based system used via web browsers. This has the benefit of avoiding the difficulties with installing software on individuals' computers and the benefit of not being suited to only one type of operating system.

Feedback Mechanisms

CAFAS uses criterion referenced assessment to communicate the important aspects of the assessment task (assignment, project, assessment). "Assessment Criteria" are defined by the teacher, although some teachers like to involve students in this process as this helps students develop a more holistic understanding of the assessment task and the learning process (Andrade, 2005). The assessment criteria explicitly define each aspect of the assignment, and in the case of a rubric, descriptors for various "performance levels" are defined for each assessment criterion (Figures 3 and 4).

Throughout the trials of the CAFAS prototype, Freney and Wood (2006) found that students appreciate it when a weighting is attributed to each assessment criterion to convey their relative importance as this helps students understand where they should concentrate their efforts. Further, it is necessary for the CAFAS system to have a numerical value associated with each assessment criterion so that marks

can be automatically assigned and tallied. A finding of the survey of Teaching and Learning leaders was that typically there are 3-5 assessment criteria used to assess an assignment.

As noted by Schuhmacher and Markham (2004), it is essential that students are informed of the assessment criteria (via a rubric in the case of Schuhmacher and Markham) prior to the assignment being due. CAFAS is capable of creating a PDF file of the feedback form so that it can be distributed to students (in hard or soft copy) prior to assessment.

CAFAS provides three options for communicating a student’s performance in a particular assessment criterion. A “performance continuum” a “rubric” and “comments boxes”.

“Performance Continuum”

The performance continuum is a horizontal “slider” similar to a scroll bar. Teachers can position the pointer anywhere along the sliding scale to indicate the student’s performance for a particular assessment criterion. Comments can then be typed into a box underneath the slider to help explain to students why they received a particular grade and how they can improve. With reference to Figure 1, as the slider (yellow triangle) moves, the mark and grade (to the right of the slider) dynamically change corresponding to the position of the slider.

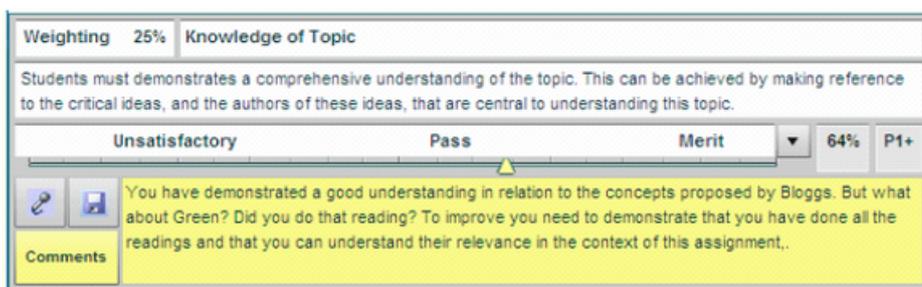


Figure 1: Slider Example

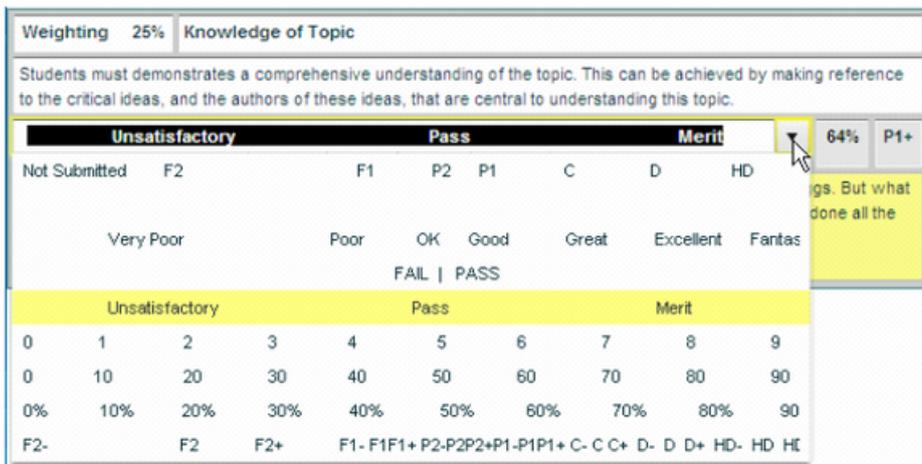


Figure 2: Slider Descriptor Options (Configurable)

The slider descriptors (the words above the slider, e.g. Unsatisfactory/Pass/Merit) can be configured to whatever the teacher decides, however there is a list of presets available from a drop down menu (Figure 2). Freney has found that students prefer grades rather than more descriptive terms as this helps them reconcile their overall grade for the assignment.

“Rubric”

Although similar in principle to the “slider” in that it defines a performance level, the rubric has the added rigor of clearly defining each “performance level”. Typically one or two sentences are used to

define the performance characteristics for a particular grade for a particular assessment criterion. It has been shown that rubrics have many advantages over traditional feedback and assessment schemes. Andrade (2005) reports four main advantages;

1. “rubrics constructively confront teachers with their goals—what it is they want a particular assignment or course activity to accomplish. They make instruction more designed and coherent.”
2. “rubrics help students understand the rationale behind assignments and activities. They enable students to see what the teacher is trying to ac-

comply, and their ability to understand what differentiates a high-quality project from one of lesser quality develops even further if they have a hand in creating the rubric that will ultimately be used to assess their work.”

3. “rubrics enable teachers to give more informative feedback to students. The level at which they met each criterion on the rubric can be checked with individual comments. Those same rubrics can be used as the bases of formative peer and self assessments.”
4. “rubrics help to keep teachers fair and unbiased. The criteria are clearly stated. Ancillary factors, like how hard the student tried, are less likely to influence an instructor when the work is as-

essed with a rubric in hand.” (Teaching Professor, 2005).

The CAFAS rubric features three columns (Figure 3). The first column lists up to a maximum of seven performance levels. Each of these levels describes a horizontal row in which a mark out of 100 and a detailed description of the characteristics of the performance level is listed (Figure 3). Subsequently, during the assessment process the marks column is hidden and is replaced with “radio” buttons, which are used by the teacher to indicate to the student which performance level is applicable to them (Figure 4). The rationale for hiding the marks is to take the focus off marks and redirect the students’ attention towards the written feedback.

Weighting 25%		Spelling, grammar and format
Spelling and grammar must be correct and formatting as per the requirement as laid out in the Course Information Booklet i.e. A4, Portrait, with headings, sub-headings, double line spaced, Arial 12pt font.		
<input checked="" type="checkbox"/>	High Distinction	100% There will be minimal or no typographical or grammatical errors and excellent formatting
<input checked="" type="checkbox"/>	Distinction	80% There will be minor, infrequent typographical, grammatical or formatting errors
<input checked="" type="checkbox"/>	Credit	70% There will be some typographical and/or grammatical/formatting errors more generic throughout the paper
<input checked="" type="checkbox"/>	Pass	60% There will be some typographical and/or grammatical/formatting errors, some of them quite major and frequent throughout the paper
<input checked="" type="checkbox"/>	Marginal Fail	40% There will be some major typographical and/or grammatical/formatting errors frequently occurring throughout the paper.
<input checked="" type="checkbox"/>	Absolute Fail	0% The paper is incomprehensible due to a total disregard to spelling, grammar and format.
<input type="checkbox"/>	Rubric Descriptor	0% Enter a performance descriptor to communicate to the student what is expected for this level of achievement.

Figure 3: Step One: Rubric Setup - Staff Check the Descriptors they Want to Use (Maximum of Seven)

Weighting 25 %		Spelling, grammar and format
Spelling and grammar must be correct and formatting as per the requirement as laid out in the Course Information Booklet i.e. A4, Portrait, with headings, sub-headings, double line spaced, Arial 12pt font.		
High Distinction	<input type="radio"/>	There will be minimal or no typographical or grammatical errors and excellent formatting.
Distinction	<input type="radio"/>	There will be minor, infrequent typographical, grammatical or formatting errors.
Credit	<input type="radio"/>	There will be some typographical and/or grammatical/formatting errors more generic throughout the paper.
Pass 1	<input checked="" type="radio"/>	There will be some typographical and/or grammatical/formatting errors, some of them quite major and frequent throughout the paper.
Pass 2	<input type="radio"/>	There will be some typographical and/or grammatical/formatting errors frequently occurring throughout the paper.
Fail 1	<input type="radio"/>	The paper is incomprehensible due to a total disregard to spelling, grammar and format.
Fail 2	<input type="radio"/>	NA

Figure 4: Step Two: Using the Rubric to Assess - Just Click the Button (“Pass 1” Clicked in this Example)

“Comments Boxes”

CAFAS provides various opportunities to add text based feedback (or attach audio files) into comments boxes. Typically feedback is directed at individual students, but it is also possible to address the whole class.

Sliders have a comments box associated with them (Figure 1 – yellow box is a comments box). The slider only conveys the general performance level so it is important that the comments box associated with the slider be used to give more detailed feedback to the student. Note that rubrics do not have comments boxes associated with them because a plurality of comments boxes is integral to the rubric concepts. If additional feedback needs to be given on a rubric feedback form, the Summary Comments Box could be used.

The Summary Comments Box is an integral part of both rubric and slider feedback forms. Staff can type into the box to advise the student of how they have performed in the assignment overall. This provides the teacher with the opportunity to give general advice on how the student can improve; the steps to take next, the areas requiring particular focus and how to avoid problems in the future.

There is also a comments box for Class Feedback. These comments can be provided to all students in the class as a way to communicate general comments about the performance of the class as a whole: the aspects of the assignment generally done well and those aspects that were misunderstood or overlooked.

All Comments Boxes have a drop down menu that enables staff to quickly access standard comments from a database. The database can be prepared, preferably by the assessment team (coordinator and tutors), before the assessment begins but it is also possible to develop the standard comments “on the fly” during the assessment process. It is anticipated that this functionality will help staff to quickly enter detailed comments that have been “designed” to communicate clearly and concisely. It is also possible to append additional customised comments to the standard comments so that the feedback can be tailored to the individual student. Another anticipated benefit is that there may be a higher level of consistency with the assessment process. For example, the assessment team could assign marks to each comment by displaying marks in brackets at the end of a comment e.g. “Your referencing scheme is correct but has some minor formatting problems – check the APA referencing standard (-5)”. In this example 5 marks would be deducted for the “Referencing” assessment criterion. Freney has found that this system does improve consistency in marking. Through the use of double blind marking Freney found that marks given by different assessors were typically within 5% of each other.

Graphs

Another element of the CAFAS feedback form is the Grade Graph. It is possible to publish a graph which displays the distribution of grades without identifying students by name or number (Figure 5). This enables

students to gauge their success in the context of their class mates' performance.

It is also possible to generate a graph that displays the class performance in each assessment criterion. It is anticipated that this functionality will enable teachers to more accurately analyse the effectiveness of their teaching strategies and encourage them to reflect on their teaching performance. The ability to

quickly identify deficiencies in the performance of their students may prompt teachers to react swiftly to correct any problems, for example, by organising a revision lecture on a specific topic or by modifying a subsequent assignment to give students another opportunity to practice the topic in which they are deficient.

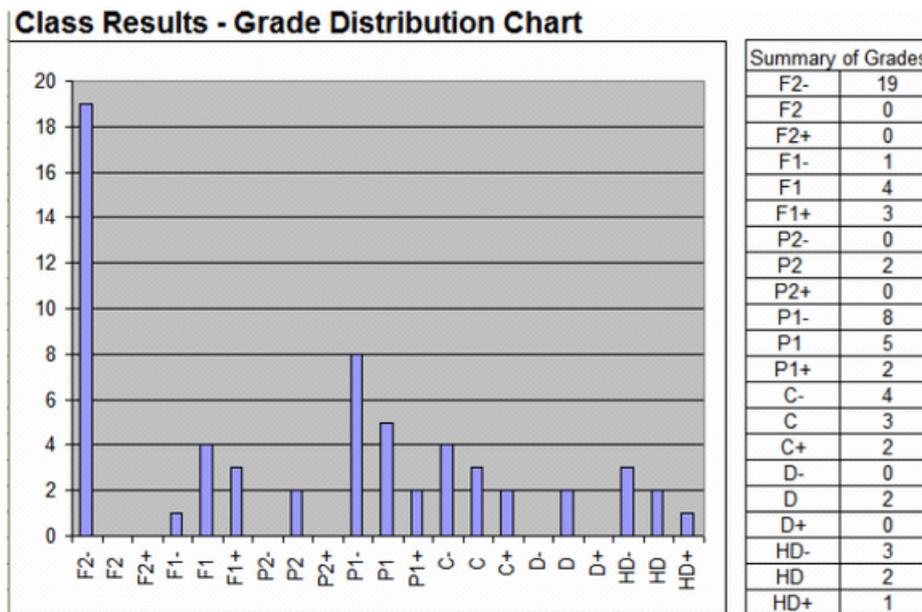


Figure 5: Grade Distribution Graph Showing Overall Performance for Class for a Particular Assignment (Note that the High Number of F2- Grades was due to Late Assignments or Students who had withdrawn from the Course and not Submitted an Assignment)

Formative Feedback

CAFAS provides the staff member with complete control over the visibility of marks (score out of 100) and grades so that it is possible to use CAFAS to provide formative feedback. In this case the comments boxes associated with the sliders for each assessment criterion are shown, but the slider is hidden. The Summary Comments Box is also displayed. This enables the teacher to give formative feedback without the distraction of rating performance levels. At a later time, after students have reworked their assignment based on the formative feedback, the teacher can re-evaluate the assignment, making the sliders visible and rate the student's performance level using the (now visible) slider. Wood (Wood and Freney, 2007) has found that an approach involving formative peer review in which both students and teacher review student assignments and provide non-evaluative formative feedback prior to final marking has many benefits:

- students can review their peers' assignments and to reflect on their own work;

- students value being able to compare their work against the assignments of other students and to improve on their work prior to final marking; and
- the communication process facilitates collaboration among peers.

In trials of formative peer review introduced into two media arts courses, Wood found that student satisfaction with the feedback they received as measured by mean scores (scale -100 to +100) in response to the course evaluation criterion "I have received feedback that is constructive and helpful" increased in a first year course (Digital Media Techniques) from 36.7 to 69.2 the following year after the introduction of the formative review process. Similar improvements were noted in a third year course (Electronic Publishing on the Internet) in which student satisfaction for feedback increased from 47.3 to 76.6 the following year following the introduction of the formative peer review system.

Another advantage for providing such control over the visibility of marks is that some academics like

to be very explicit about the number of marks awarded, whereas others prefer not to display marks and use a grade (which describes a range of marks) instead. This seems to vary according to discipline and the personal preference of the teacher and further research is needed to identify the merits of these approaches.

Institution Specific Policy

CAFAS stores institution specific policies and terminology relevant to feedback and assessment in its database. This information is embedded into CAFAS so that teachers can quickly access important learning and teaching policy as defined by their institution. Graduate Attributes (generic skills), Grade

Descriptors and Grade Schemes, and Learning and Teaching terminology all vary slightly between institutions. CAFAS has been designed to enable it to be easily customised so that it can conform to the unique requirements of various tertiary education institutions. A drop down menu (Figure 6) enables staff to select their institution from a list and this populates CAFAS with the relevant terminology and grade/mark schemes that are specific to that institution. For example the term used to describe the typical 12-14 week “subject” can also be referred to as a “course” or a “unit”. Grade/mark schemes also vary and this information is recorded in the CAFAS database so that staff do not have to enter this information manually, possibly making errors or interpreting the policy differently.

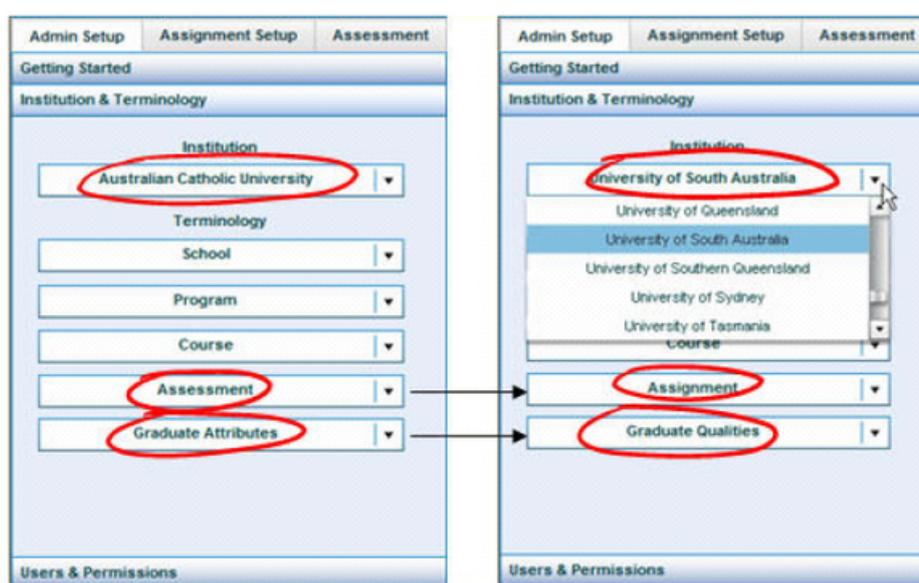


Figure 6: Customization of Institution Specific Terminology

A section of the feedback form is dedicated to “grade descriptors”, which enables the staff member to describe the general attributes and indicators to qualify for a particular grade. In a review of institutional assessment policy, Freney found that the vast majority of institutions had clearly defined their Grade Descriptors. By including this information on the standard CAFAS feedback form it is a timely and convenient reminder to students of what the expectations are for overall performance levels in their institution.

Likewise, a section for “graduate attributes” enables the staff member to describe how a particular assignment develops the various graduate attributes specific to a particular institution. The importance of developing generic skills that assist the graduate to operate as ethical and effective members of a global society has been stated by Bowden et al. (2000) and Hager et al. (2002). The CAFAS database stores the official graduate attributes of each institution which enables the teacher to quickly review their

institution’s official descriptors, and if they desire they can redraft or modify the descriptor to help contextualise the descriptor with reference to a particular assignment. Anonymous, online course evaluation surveys have shown that Freney and Wood’s students demonstrate a high understanding of how the course develops graduate attributes. Although other factors may be involved, such as discussing graduate attributes in lectures, explicitly stating how a particular assignment develops generic skills is likely to contribute to this better understanding. CAFAS enables teachers to quickly access, review, edit and incorporate graduate attributes into feedback forms.

Additional Functionality

CAFAS is able to import and export tables of grades and marks so that it can be manipulated in Microsoft Excel and other spreadsheet software. This facilitates the process of reporting final course/unit/subject

results into institutional data processing systems. It is anticipated that this process will be streamlined even further by software developers as CAFAS gains popularity.

Laborious tasks such as recording of assignment grades/marks and totalling of the overall grade/mark has been automated by the system. A spread sheet web page (Figure 7) called “Mark Book” handles these administrative tasks.

Student ID	Last Name	First	Mid	Student Email	Prog	Cl	Assessor	G1	M1	G2	M2	G3	M3	G4	M4	GF	MF
12334	Aisten	Anns	Reb	aaisten@unisa.e	Indu	21	Martin Fren	P1	65	P2	62	P1	68	C	75	P1	65
23445	Drummon	Greg	Patr	gdrummond@ur	Indu	21	Peter Schui	P2+	62	P2	62	P1	68	C	75	C	65
55336	Zimmorm	Step	Joal	ezimmorman@u	Indu	21	Martin Fren	D+	85	P2	62	P1	68	C	75	P1	65
63743	Owens	Patri	Simi	powens@unisa	Indu	21	Sandy Wall	F2+	55	P2	66	P1	68	C	75	P1	65
64655	Wesley	Shar	Alic	ewesley@unisa	Indu	21	Peter Shum	C	75	P2	62	P1	68	C	75	P1	65
64354	Chow	Pete	Micl	pchow@unisa.e	Indu	21	Martin Fren	P2+	62	P2	62	P1	68	C	75	P1	65
55493	Solcs	How	Stev	hsolcs@unisa.c	Indu	21	Martin Fren	C-	72	P2	62	P1	68	C	75	P1	65
54533	West	Adar	Crai	awest@unisa.e	Indu	21	Martin Fren	P1	65	P2	62	P1	68	C	75	P1	65

Figure 7: “Mark Book” Automatically Records Marks and Grades for Each Assignment and Totals them According to the Weighting for Each Assignment

Once completed, Feedback Forms can be dispatched to students via email with one click. It is anticipated that these automated functions will enable staff to focus on providing high quality feedback rather than tedious and burdensome administrative tasks.

Consideration of accessibility issues has been integral to the development of CAFAS to ensure that staff and students with disabilities are not disadvantaged. The interface provides options enabling the user to select various accessibility options such as specifying font size and colour contrast, alternative text is provided for all graphical content and the application can be accessed entirely using keyboard control if required.

CAFAS has been developed using the Creative Commons Share Alike licensing scheme, which enables software developers to modify CAFAS providing they do not commercialise the new version. Open Source software has been used in its development to facilitate collaboration with other institutions. This approach ensures that CAFAS is freely available to anyone who wants to use it, and that future modifications are also available at no cost. It is anticipated that as CAFAS gains popularity and more requests for additional functionality and changes are forthcoming, the teaching and learning community will respond by developing improved versions of CAFAS.

Conclusion

CAFAS replicates a commonly used system, the paper based feedback form, while extending its func-

tionality through an online interactive system. The inclusion of rubrics and the ability to “mix and match” sliders, rubrics, comments boxes and audio recordings offers many opportunities for teachers to experiment with online feedback and assessment. It is anticipated that the teaching and learning community will engage as active participants in the continuous evolution of this highly flexible, open-source learning tool.

Evaluation of the efficacy and acceptance of CAFAS will continue as the application is implemented and distributed to Australian institutions, and academics who are interested in collaborating with the research program are welcome. A website has recently been created to help disseminate information about the project. The address is <http://www.unisanet.unisa.edu.au/cafes/index.asp>.

Initial trials reported by Freney and Wood (2006) and Wood and Freney (2007) indicate that students appreciate receiving online feedback via CAFAS, and that this feedback assists them in their understanding of how to improve on their work. As academics from participating institutions implement this solution in their own contexts and continue to contribute to its development through the open source approach, a new paradigm in the way in which assessment is conducted and feedback communicated can be defined.

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