Towards achieving good assessment practice – A case study

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Abstract: The University of Tasmania (UTAS) is currently undertaking a major review of assessment as it moves towards implementation of standard-based criterion referenced assessment. A review was undertaken of the third year design unit taught by the School of Engineering. This review revealed that the existing unit outline did not adequately define the assessment tasks and that the assessment criteria in the existing unit outline were not comprehensive enough to provide a guideline as to what was expected at each performance standard. This paper describes a project undertaken to design and develop a study guide in which assessment in the design unit are more clearly defined. The foundational work for the study guide was the development of learning activities and assessment tasks that were aligned to the learning objectives.

Introduction

Adoption of a scholarly approach to learning and teaching is becoming more widespread in the tertiary sector with continual review and reflection on practice a characteristic of good teaching (Ramsden, 2003). At the University of Tasmania (UTAS), teaching staff are encouraged to collect systematic evidence, including student feedback, to allow informal evaluation of units on an annual basis (UTAS, 2003), and more comprehensively during scheduled cyclical reviews of programs (UTAS, 2007).

The principle of constructive alignment (Biggs 2003), relating to the alignment between learning objectives, learning activities and assessment tasks is a key underpinning of teaching and learning in Higher Education. A recent institutional focus on assessment, coinciding with the introduction of criterion referenced assessment has further reinforced this as a focus for unit review. This includes adherence to the three accepted underpinning principles; assessment should be an integral part of the teaching and learning cycle; assessment has multiple purposes and; assessment should be transparent and fair (Allen et al, 2007). The first principle firmly supports constructive alignment in unit design, the second emphasises importance of assessment in guiding meaningful learning and allowing learners to be informed of their progress, and the third underlines a need to provide students with clearly articulated standards against which they will be assessed (Williams 2005).

In 2008, the review of a design unit taught by the School of Engineering identified that assessment tasks were not clearly defined in the unit outline and the learning objectives, as stated, were not comprehensive enough to provide a guide as to the level of achievement expected from students. This was identified as an area for review in the next iteration of the course, and forms the focus of this paper.

Methodology

An action research methodology – a cycle of reflection, planning, action and evaluation (e.g. Kember, 1998) has been adopted for this study. This is consistent with the University's own quality assurance principles based on planning, implementation, review and improvements (UTAS, 2004). Following reflection on the unit in focus – a design unit taught by the School of Engineering – there was an identification that assessment tasks could be more clearly defined, and the required performance

standards more explicitly stated. An intervention, the development of a Study Guide, was planned to allow greater detailing of the assessment tasks and to provide scaffolded learning (Jackson et al 1998, Stewart et al 2007) for students as they progressed through the unit.

The Study Guide aimed to addresses issues relating to constructive alignment principles, scaffold meaningful learning and, promote transparency in assessments. Provided as an additional resource to all students, the guide contained: (a) The learning objectives of each of the individual chapters covered in this unit; (b) Self-assessment exercises; (c) Tutorial questions and; (d) Typical examination questions. The introduction of the Study Guide also provided the lecturer with an opportunity not only evaluate the guide itself, but also to gain an insight into the students' perceptions of some of the issues relating to good assessment practice more broadly. These opinions and responses were analysed together with current literature and the authors' own experiences in an attempt to use the lenses necessary in critical reflection as pointed out by Brookfield (1995).

In this project the sources of student evidence used in the evaluation of the project have been divided into 2 sections: (a) The pre-implementation stage and; (b) The post-implementation evaluation stage. Pre-implementation evaluation consisted of a student questionnaire designed to get the students' preconceptions on how the unit was being run in week 6 of the semester, before they had been given the Study Guide. The questions gauged student perceptions on constructive alignment of the unit as described in the unit outline and experienced at the early stage of study and; the transparency, clarity and fairness of the assessment. The post-implementation evaluation took place at the conclusion of the unit and also consisted of a student questionnaire. In the pre-implementation stage, the questionnaire gathered quantitative data (via Likert-scale questions) and in both stages qualitative feedback was gathered through inviting open-ended comments. The use of both types of data sources is consistent with a pragmatic approach to research (Creswell, 2003), appropriate for the investigation of a 'real world' situation.

The student evaluations in this project were gathered using the in-class method (Dommeyer et al 2004). It is acknowledged that in-class collection of feedback through questionnaires raises some concerns such as "instructors manipulating ratings through their comments or actions when distributing questionnaires" (Simpson and Sigauw 2000 in Dommeyer et al 2004 p. 612), however this was mitigated against by students being fully informed that the data was collected for review of the unit specifically and not for the purpose of teaching review. This method of data collection is also supported by the work of Huxham et al (2008), who have considered different methods of obtaining student feedback. Their analysis concluded that it is more desirable to capture both quantitative and qualitative feedback and that SET questionnaires that "include a separate page where students can add qualitative answers to the same questions in … 'rapid feedback' method" (Huxham et al 2008, p.11) in a manner that focuses feedback on specific issues and makes the collection of data manageable in large class situations. The quantitative part of the feedback has an advantage in that it "provides an opportunity to obtain feedback from the entire population of students … in a more or less systematic way" (Richardson 2005 p. 401). Although "the burden of analyzing open-ended responses and other qualitative data is immense, even with only a relatively modest sample" (Richardson 2005 p. 401), the small class size in the unit for this project made it achievable.

Results and analysis

Pre-implementation phase

The pre-implementation survey, providing student feedback prior to undertaking the unit, was completed by 22 out of 27 students enrolled in the unit. The results of the quantitative responses are shown in Figure 1(a) -(f) with the questions shown as part of the graph.

Figure 1a shows that students agreed that there was alignment between stated learning outcomes in the Unit Outline, the learning experiences planned for the course of the semester and the assessment tasks that they had done thus far. More than 80% of the students either agreed or strongly agreed to this notion. Interestingly, although there were not a significant number of written comments to this question from the students, some suggested that students had not actually read the unit outline; "Haven't read outline" and "I don't know what learning objectives are but I think everything that I

have learnt is good" being two examples. It should be noted that this was despite hard copies of the unit outlines having been given and explained to, students in the first lecture of the unit.
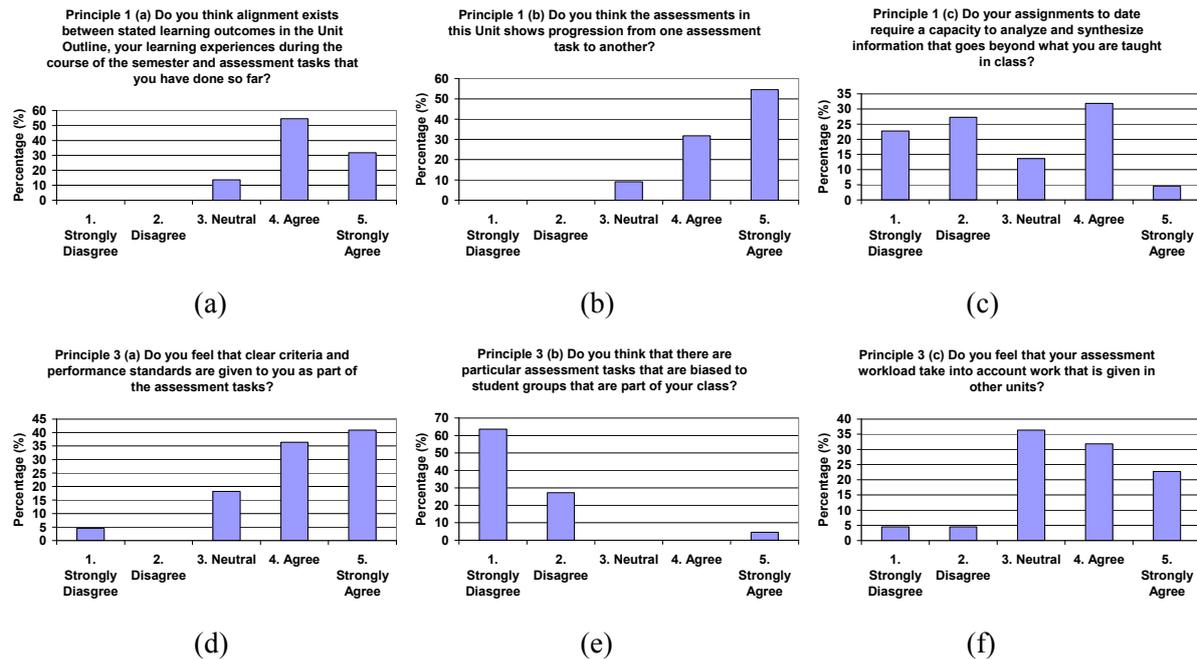

Figure 1: Analysis of pre-implementation questionnaire data

Students also responded positively to the questions that assignments showed a progression in difficulty through the unit (figure 1b) and this was supported by comments such as, "We are constantly learning new things, so progression is inevitable". Figure 1c, however, provided data that indicated a need for some review. There was a split in opinion regarding whether assignments required a capacity to analyse and synthesise information that went beyond what students were taught in class. Slightly more than 35% agreed that this was the case but more than 45% of those surveyed thought they did not need further study beyond what was taught in class to do their assignments. Comments included some indication that the "assignments were too easy" and others that were contrary, "the next few assignments forced us to think which separated the men from the boys".

Figure 1d shows that the majority of students agreed that clear criteria and performance standards were given to them as part of the assessment tasks (with more than 70% in agreement). There was, however, one query on "How much the essay was worth?" pointing to an omission in defining the marks in one of the assignments that was given. Bias in assessment tasks did not appear to be an issue for the majority of students (figure 1e). One student commented that "As long as everyone attends class they should be able to complete assignments". The final question asked student to comment on the overall assessment workload of the course, with students mainly neutral as to whether they thought that assessment workload takes into account workload given in other units (figure 1f). Overall there was general agreement that the workload in this unit takes into account, workload in other units. One student pointed out that "Assessment workload is not strenuous".

Post-Implementation Stage

Nineteen people out of the 27 enrolled in the unit participated in the post-implementation questionnaire that sought qualitative responses to assessment processes in the unit. Responses to each question were grouped together and analysed to provide the following summary. Indicative comments given by students in response to these question have also been included.

1. *Do you think the Study Guide has helped to make assessment in this unit more transparent? Give your reasons*: There was unanimous agreement among respondents that the Study Guide has helped to make assessments more transparent. Most of these students felt that the fact that they would have all their assignment questions at the beginning of the course meant that they wouldn't need to "second guess what the assignments" were as was the case when they started the course. This would "reduce

anxiety" and would also "allow them to immediately see which parts of the lectures were more important and relevant as the lectures went on". Some of the respondents however thought that although the Study Guide was going to make assessments transparent, this was not going to significantly improve how they normally approach their studies since they normally "do not study ahead" and would therefore not do much about assignment questions "unless they were due".

2. *Which parts of the assessments in this unit do to you consider not transparent – marking scheme, assignments questions or examination questions? Give reasons why you think this part of the assessment is not transparent?*: The students had not completed any examination component of the unit at the time of responding to the questionnaire so the students' comments for this question can therefore be assumed to be based on prior examination experiences. More than 75% of the respondents thought that the examinations were the least transparent part of the assessments. They cited the fact that "lecturers at times set tricky questions seemingly to try and fail students", and that "from past experiences some of the examination questions are deliberately made harder and beyond the scope of what is taught in class" and that "for transparency, examinations should be returned to students once they are marked like every other assessment task".

In terms of the Study Guide, respondents were positive and thought that the Guide would make assignment questions more transparent compared to the previous practice. About 20% of the respondents thought that the marking scheme was the least transparent because they do not understand what it is based on and it seemed to be "based on the subjective judgment of the lecturer". One respondent commented that "at times the marking scheme is unfair since the workload for different weightings of marks might actually be the same".

3. *Which part of the assessments do you consider to be most important in your study and why?*: The majority of the students thought that the examinations were the most important in their study. One of the respondents commented "The exam of course, I can't consult with my colleagues on it". Others pointed out that the examinations were more important to them because it "is worth 60% of the course". Other students however had pragmatic answers to this question pointing that "Normally if I do well in the assignments during the semester, I am more confident at exam times and do better, so both the examination and the assignments are important to me".

4. *Comment on how self-assessment questions may or may not have changed how you study for this unit*: Most of the students thought that self-assessment questions were quite useful in that it had allowed them not to only look at the bigger picture in their understanding but at "small sections" making up the different chapters of the unit. One responded that "I can better understand some parts of the course which I would normally have been happy just to memorize". Another student suggested that maybe "The self assessment questions should be marked so that students are forced to understand the background to some of the assignment questions". However one student thought that "Even if I do not do the assessment questions, I feel I can still pass the unit and get good marks in my assignments because the assignment questions are based on examples done in class".

5. *What would you change in the assessment of this unit to make it fairer and more transparent?*: Most of the respondents simply said "Nothing". There were two respondents who pointed out that at first they were of the opinion that the essay which forms part of the assessments in this unit seemed to be out of place in an engineering subject but after completion of the essay felt that it had been a very valuable part of their experience in this unit because it allowed them to carry out independent research. One student commented that "I enjoyed looking at different sources for various characteristics of high strength concrete and learnt a lot about some of its great applications in high rise buildings, bridges and other structures".

Discussion and Conclusion

One of the significant principles in learning and teaching in Higher Education is the principle of "constructive alignment" (Biggs 2003). This project has verified that from the student experiences, the unit can be considered to be "aligned" even before the introduction of the Study Guide since this finding was obtained in the pre-implementation stage. This research also showed that some of the core principles for good assessment practice are also satisfied in the unit surveyed. These core principles

are based on nationally and internationally recognized publications on assessments such as that by James et al (2002) and institutional publications such as that by University of Tasmania Assessment Working Group (Allen et al 2007). These core principles of good assessment practice relate to, but are not limited to the following issues: (a) alignment of learning outcomes, learning experiences, and assessment tasks, (b) progression from one assessment task to another, (c) clear criteria and performance standards, (d) biased assessments and (e) workload.

The students indicated that they thought assessments in this unit showed progression from one task to the next, not unexpected as the assessments have been designed to follow a logical sequence from background knowledge, to analysis and design of elements followed by "real-life" designs based on project-based learning techniques. Students also indicated that they did not believe there was any bias in the assessment towards specific groups. As this unit is in the third year of a degree program and there is not a significant proportion of students who are, for example, from a non-English speaking background this is not surprising. Problems, such as for example, language difficulty do not arise within this group even more so since most of the assignments in this unit are largely mathematical with only one essay required as part of the assessment.

An unexpected outcome in the pre-implementation stage was the variation in opinion with regards to whether assignment required a capacity to analyse and synthesize information that goes beyond what is taught in class. This may be a reflection of the different strengths in students, with some students of the opinion that what is taught in class is sufficient to solve assignment problems whereas others feel that they need further information than that provided in lectures. There is also a contradiction here, since 80% of the students tend to agree that there is alignment between what is taught in class and what is assessed. Another unexpected finding from the pre-implementation stage was that students generally thought that workload in this unit takes into account workload in other units.   However, the authors, from previous anecdotal evidence, were expecting that students would point to the fact that there is no consideration in workload given in this unit to that in other units. The result is even more surprising when one considers that the school does not coordinate the timing of assessments in different units.

In the post-implementation stage, the students agreed that the Study Guide made assessments more transparent and that self-assessment exercises were leading to a better understanding of the subject matter. What was particularly interesting in this stage were the insights into some of the study habits of the students – for example not planning ahead and tending towards memorisation of difficult concepts. These techniques tend to suggest a 'surface' or 'strategic' approach to learning (Biggs, 2003). What was most pleasing were student comments that indicated the Study Guide through its use of scaffolded learning techniques (Jackson et al 1998) such as self-assessment tasks, appeared to be promising in encouraging "deep learning" (Biggs 2003), at least in some students. Indeed, the students who commented about the ability to build understanding of content through the self assessments support a scaffolded approach. Through scaffolding learning, students can develop skills or competencies in a step-wise fashion, through understanding small elements of a complex system, for example, leading to comprehension of the complex system (Jackson et al 1998).

Responses of students with respect to examinations are also noteworthy. They are certainly seen by students as "the most important assessment tasks", yet they are not viewed favourably as far as transparency is concerned. A significant number of students find the process unclear and to certain extend secretive. There were suggestions seemingly radical to the status quo that examinations, like other assessments, should be handed over to the students once they are marked. There was a genuine concern expressed by the students that most of the time, unless for example when a review is requested, they never know where their mistakes lay in an examination.

Richardson (2005 p. 401) points out that "student feedback can provide diagnostic evidence for teachers and also a measure of teaching effectiveness for administrative decision-making". In this project, student feedback was used as a major source of evidence for gauging perceptions not just of the intervention, the Study Guide, but about assessment in the unit more broadly. In general there are some positive outcomes from this research that relate to existing processes and issues such as alignment, progression, performance standards and criteria, bias and workload in the unit that was

surveyed. However it can be seen that the new resource – the Study Guide, with some attention to the marking scheme will continue to improve transparency in assessments, and guide meaningful learning. Finally, the research has raised some interesting questions regarding examinations that warrant further thought in the degree program.

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