Building Reflective Practice into Student Learning

~~~~~&~~~~~

Georgina Fyfe
School of Biomedical Sciences
Curtin University

Over the last two years I have gradually introduced reflective practice into the curriculum of two first year service units for Medical Imaging students. I now provide opportunities at the end of each class for students to assess their learning and to suggest reasons to explain their assessment ranking. After each lecture, prac and tutorial students complete a quick assessment. I also ask them to reflect on their performance in each practical test through the semester, to identify areas of weakness and suggesting strategies to overcome them. Students who choose to use this well can accumulate information about factors which influence their focus, and also have a record of areas of the syllabus which will require more revision than other areas.

With the students' permission, I collated summary information from reflection activities and have asked for feedback in end-of-semester evaluation. I asked the students at the end of the last semester if they used the reflection opportunities to help their learning. Some did not find them useful but the majority said they did, and one unsolicited comment stated:
*   "..wouldn't have done reflection if we didn't have to, but it did help"*

One surprising result of the collated information is the number of students who gave internal rather than external reasons for performance. For example, instead of blaming the boring lecturer or the difficulty of the subject matter, many students identified their own lack of focus, tiredness or distraction as key reasons for lowered learning outcomes.

At the round table I propose to share the strategies I have used for incorporating reflective practice into student learning, to present summaries of collated student information, and to facilitate discussion about the effectiveness of these strategies in helping students to learn.

Introduction and background

Reflection has long been postulated as being useful in the learning process (Batts & Wilkes, 1993). Refection "illuminates what has been experienced" and provides "a basis for future action" (Raelin, 2001). The literature reports the incorporation of reflective practice involves students using written or videotaped journals (Hewson, et al 1999). However, I needed to develop a system to allow quick, immediate, easy and frequent reflection by students in a form which they could use to quantify their learning experiences.

Developing reflective practice skills in university learners from the outset of their course will give learners opportunities to hone these skills throughout their learning lives. However, service units which provide fundamental information at the beginning of an applied course of

study can rarely afford to allotted time for the maintenance and monitoring of reflective journals and similar accepted techniques.

Human Biology units in the first year of the Medical Imaging course at Curtin University are service-taught by the School of Biomedical Sciences to approximately 65 students per year. The two units cover a syllabus based on systematic functional anatomy, with an emphasis on musculoskeletal structures in the first semester and organ functions and relationships in thorax and abdomen in second semester. I have taught these units and worked with Medical Imaging students for the last 11 years, and this has provided me with opportunities to observe student learning and try out some ideas for improving learning outcomes with this group of students. The incorporation of reflective learning opportunities into classwork was prompted by two observations; attributing their learning to external factors, and deferring learning

Attributing their learning to external factors

It has been my experience that students will often attribute their performance in particular units to external factors such as; a boring lecturer, uninteresting material, the timing of the lecture or poor unit organisation. While these may be perfectly valid contributing factors, they are also factors over which students have little or no control. When students attribute positive or negative learning experiences to internal factors such as preparation for class, concentration and focus, late nights or off-task chatting, they have identified something over which they have control. If we can get students to focus on internal factors about their learning behaviours, they can develop strategies to deal positively with those behaviours.

Deferring learning

Access to photocopiers and web-based lecture notes gives students opportunities to defer focussing on material presented in class. They can let their mind wander because they can download the notes at some later stage. Asking students to evaluate their learning at the end of a lecture, tute or lab requires them to focus more on the learning they do in class rather than the study they do at home, which often occurs after a significant time lapse.

I wanted to offer students opportunities to do quick reflections at the end of each class in order to help them focus on internal factors which they can identify as being positive to their learning, and to address learning problems or misunderstandings before too much time has elapsed.

Reflective learning opportunities provided to students

The opportunities provided to students to reflect on their learning occurred formally at the conclusion of each lecture, practical class and tutorial. They took the form of reflection bars which students filled in to represent their achieved learning for that class, and prompted them to think of factors which influenced their achieved learning score. Representations of the reflection bars are shown below;

Lectures

Learning Rating for this lecture		
Low		**High**
Reasons		

Tutorials

Personal Grading for this tute sheet		
poor		**v.good**
Reasons		

Practicals

Practical One Checklist		
Things to follow up……		
Learning Rating Prac 1		
I wasted time and didn't learn enough		**I worked well & learned heaps**

The students are tested on practical material three times in the first semester and twice in the second. After the first practical test in each semester I asked them to reflect on their achievement in the test and consider possible contributing factors, both positive and negative. They first stated their score in the test, and rank it on a scale from higher to lower to indicate whether their score was as expected. I then asked them to transfer the information from their practical reflection bars and summarise the reasons they gave. Next, students were asked to list three main problem areas in their learning which was highlighted by the test, and what strategies they would employ to overcome these problem areas before the next test. I gathered these sheets from the students and read them, then talked with individual students about their problems and strategies. This helped me reflect on how students perceived aspects of the curriculum. I believe it also as encourages students to articulate and commit to strategies for improvement.

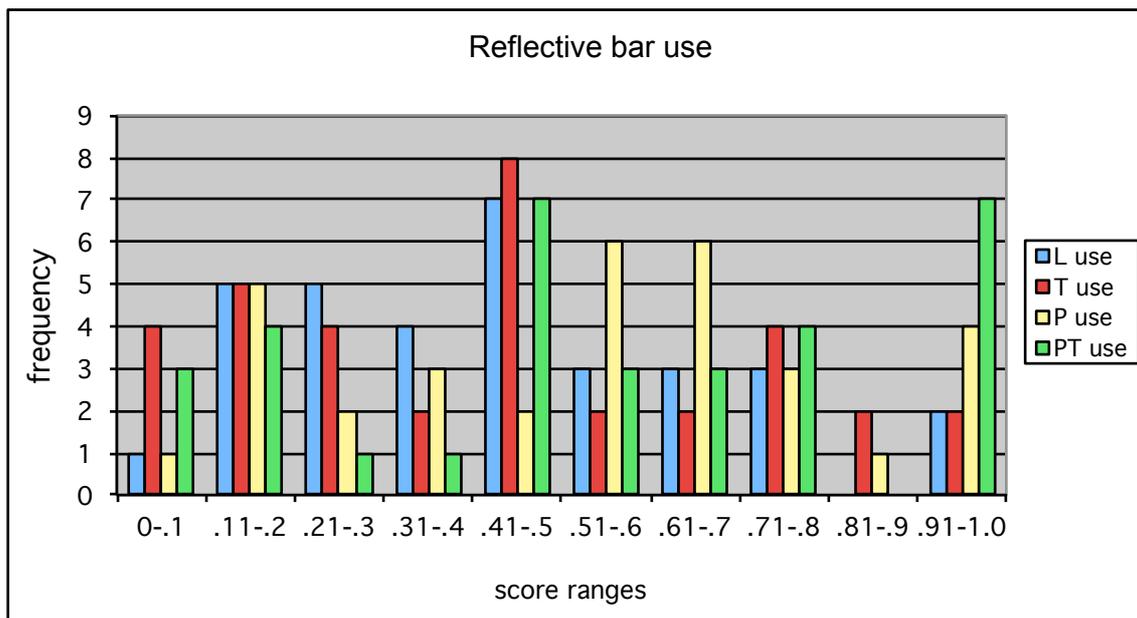## Evaluation of reflection bars

At the end of semester two I asked students for feedback about their use of the reflection bars during the semester. Thirty three students returned the evaluation sheets and the information was collated. Students were asked to mark on a continuum their responses to two questions for each of the reflection opportunities; lectures, tutes, pracs and prac tests. The first question asked if they used the reflection bars and the continuum started at "Never used them" and finished at "Used them all the time". The second question asked how reflective they were

when they did use them, and the continuum started at "Was very reflective and considered the score seriously" and finished at "Just made something up". Data were generated by measuring along the continuum and scoring the mark out of 1.00. The evaluation questions were a balanced mix of positive and negative.

Did they use them?

The data were grouped into ten ranges and frequencies were calculated. These frequencies for reflective bar use in lectures (L), tutorials (T), practical classes (P) and prac tests (PT) are summarised in Figure 1.
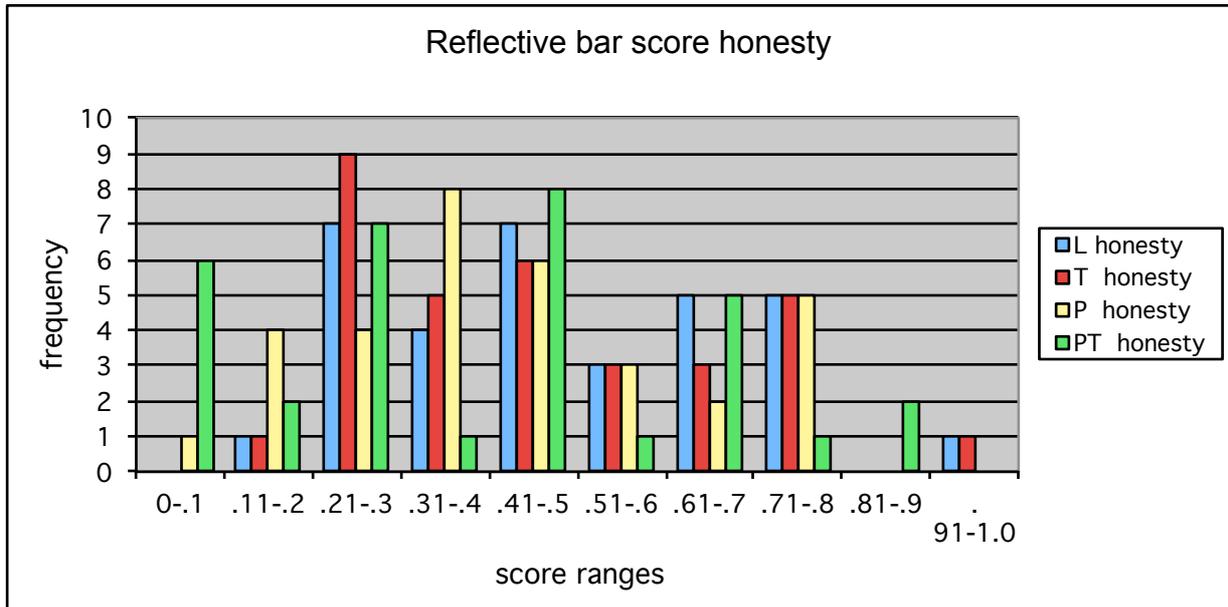
Figure 1. Use of reflective bars for lectures (L), tutorials (T), practical classes (P) and prac tests (PT)

Were students honest and thoughtful about the reflection bars?

The second question asked how reflective they were when they did use them, and the continuum started at "Was very reflective and considered the score seriously" and finished at "Just made something up". Once again the data were grouped into ten ranges and frequencies calculated. These frequencies for reflective bar use in lectures (L), tutorials (T), practical classes (P) and prac tests (PT) are summarised in Figure 2.
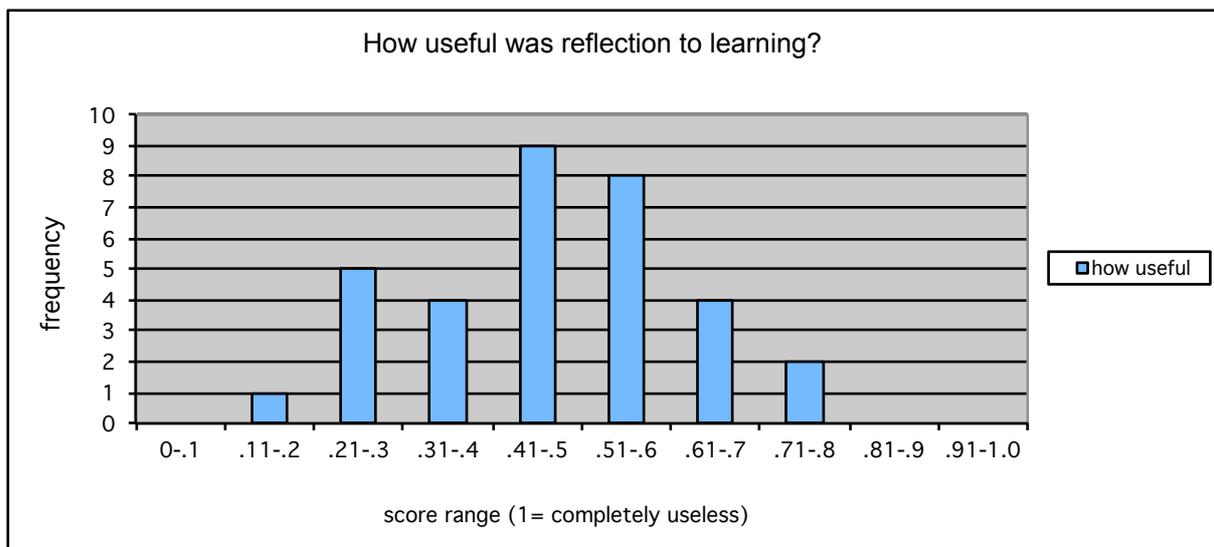
Figure 2. Honesty of scores on reflective bars for lectures (L), tutorials (T), practical classes (P) and prac tests (PT)

Did they feel they helped their learning?

At the end of the evaluation sheet, students were asked to respond to a question asking about the general usefulness of the reflection bars to their learning. In this question, a score of zero represents "very useful" and a score of one represents "completely useless". Data were grouped into ten ranges and frequencies calculated. These are represented in Figure 3.
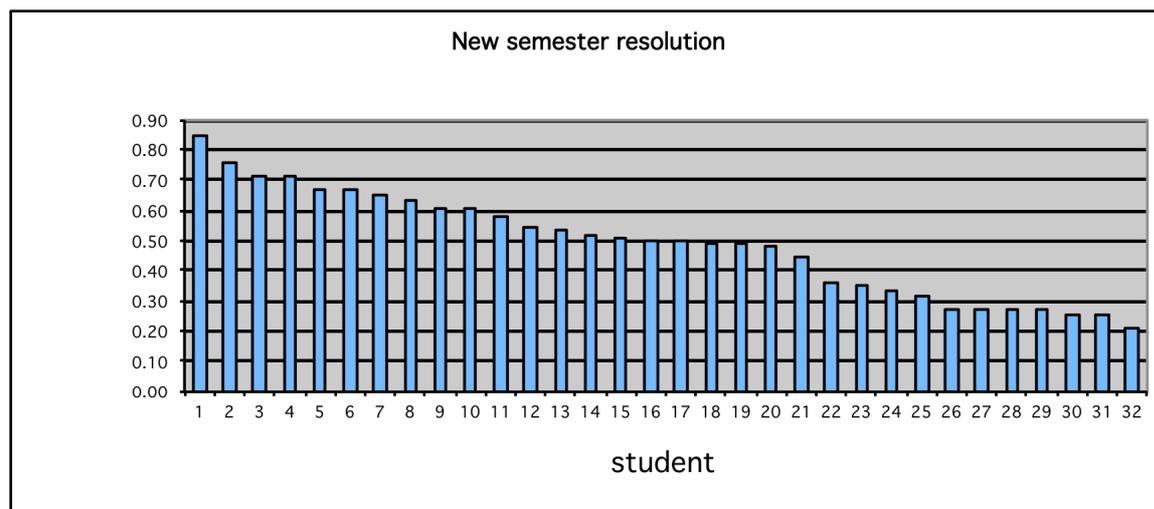
Figure 3. How useful were the reflection opportunities to your learning?

New Semester Resolutions

In addition to the reflection bars, I also asked students at the start of the second semester to write down their New Semester Resolution based on strategies developed from the previous semester. These were folded, stapled and collected by me to be held over til the end of the second semester. Then students reclaimed their resolution and I asked them on the evaluation sheet to rank how well they had achieved their New Semester Resolution (NSR). A score of one meant that the resolution has been met completely. The values, in descending order, are presented in Figure. 4.

Figure 4. How well did you meet your New Semester Resolution (NSR)?

The evaluation sheet gave room for students to give a reason why their NSR had been met to the degree they had indicated on the reflection bar. Twenty nine students chose to comment and these comments were grouped into those attributing their score to external factors and those attributing their score to internal factors. External factors such as family commitments, time constraints or the demands of other units were given by 34% of the responding students while the remaining 66% cited more internal reasons such as their motivation, focus or study skills, their enthusiasm or personal commitment to do well.

Conclusion

The data indicate that students are using the reflection bars to various degrees and not all use is honest or truly reflective and therefore cannot be of help to student learning. However, my work shows that it is possible to provide reflection opportunities for students without a large sacrifice of syllabus time. For many students these opportunities were useful to their learning and helped them to develop reflective practice skills. Further development of these ideas would incorporate regular feedback to the class on collated reflection data, and greater personal discussion with students about their reflective practice.

References

Batts, J.E. & Wilkes, L.M. (1993) Reflective journalling in science learning. In Bain, J. et al (Eds) *Promoting Teaching in Higher Education* Griffith University Print.

Raelin, J.A. (2001) Public reflection as the basis of learning, *Management Learning,* 32(1), 11-30.

Hewson, P.W., Tabachnick, B.R., Zeichner, K.M., Blomker, K.B., Helen Meyer, H., Lemberger, J., Robin Marion, R., Hyun-Ju Park, Toolin, R. (1999). Educating prospective teachers of biology: introduction and research methods. *Science Education* 83(3), 247-273.