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Reviewing the existing feedback given in a design education unit a decision was made to improve the type and methods of feedback given. With the expeditious growth of Web 2.0 technology, a part of students’ daily routine, we incorporated it to augment feedback. The Web 2.0 technology has embedded skill-building properties and extended design education through peer-to-peer collaboration, analysis and critiquing the visual. Student outcomes improved through highly interactive and collaborative feedback techniques.

Students now have access to a vastly superior system where feedback is accessed anywhere, any time, increasing knowledge and developing design principles.
A Web 2.0 Recipe for Effective Feedback

Abstract
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Reviewing the existing feedback given in a design education unit a decision was made to improve the type and methods of feedback given. With the expeditious growth of Web 2.0 technology, a part of students’ daily routine, we incorporated it to augment feedback. Web 2.0 technology has embedded skill building properties and extended design education through peer-to-peer collaboration and analysis and critiquing the visual. Student outcomes improved through highly interactive and collaborative feedback techniques.

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Keywords
Feedback-on-learning, feedback-for-learning, Web 2.0, photography

1. Introduction
This paper describes how a focus on feedback for effective outcome-based learning has created a new dynamic in teaching photography in a design unit. The unit employs a blended learning and teaching approach, using face-to-face and Web 2.0 technologies as tools to assist teachers and students interact with direct and regular feedback.

The authors in this paper have advanced their initial work using Web 2.0 for image sharing, critique and peer interaction in 2007. This work is now augmented to support teachers and students improve feedback processes. The immediacy and flexibility of Web 2.0 has enabled students and teachers more frequent and timely opportunities to give feedback. Feedback is now a recognised and formal requirement of the unit. Teachers and students must critique and comment on the work of others, giving feedback on learning achieved as well as on the learning needed for improvement.

A new approach has facilitated deeper critical and analytical thinking by students about their own photos and the comments written on the work of their peers. Providing students with new skills and strategies on how to use the feedback they have been given has allowed them to understand more about the type of feedback they want to receive, and what they should communicate to their peers. Students have responded to this new approach with deeper consideration of the type of feedback they give to their peers. Students not only appreciate and act on the feedback they receive but realise the
importance and impact feedback has for continued learning. The success of this approach has been achieved by establishing a collegial, collaborative learning community in the first week of semester. This has underpinned a framework that has set the scene for proactive, participatory feedback delivered in several ways.

Research on the impact of feedback on student learning has gained momentum in recent years. Research undertaken by (e.g. Black & Wiliam, 1998; James, McInnis, & Devlin, 2002; Krause, Hartley, James, & McInnis, 2005) on the feedback highlights the importance of teacher-student interactions and its impact on high-quality learning.

Data gathered from the Australasian Survey of Student Engagement (AUSSE) survey have provided key information on student engagement. The 2007 and 2008 AUSSE report indicates profoundly poor results on student engagement (AUSSE, 2009). One of the underpinning scales of engagement used is student perception on the level and nature of performance on their contact and interaction with teaching staff. This was scored on a scale of zero to 100% with the latter indicating total satisfaction with staff contact and interaction. In 2007, the average score for first-year students was 18.3% and later-year students 23.9% and in 2008 the average score was 19.8% for first-year students, rising to 24.5% for later-year students.

Of particular note for the authors of this paper is the result on student’s receipt of prompt written or oral feedback from teachers/tutors on academic performance. A concerning 61.4% of first year students and 59.7% for later year students reported on ‘never’ or only ‘sometimes’ receiving prompt written or oral feedback on their performance. Results from the AUSSE report impacted on our determination to review and improve feedback in the design education process. This is also confirmed by the Blair, Blythmen, & Orr (2007) report that examined the use of the critique in art and design teaching and learning. This report highlighted ‘that there is a perception of art and design students that they are not getting enough feedback’ (2007 p. 3).

Effective feedback plays a major role in supporting successful learning and should be valued by students. It must be immediate, timely, focus on achievement and provide guidance for future improved performance. Feedback guidance and advice should include detailed informative and successful ways to achieve required outcomes. Feedback should assist learning, be encouraging, and motivate students by focusing on the work rather than the individual, which could reinforce inabilities and undermine self-confidence (Gibbs & Simpson, 2005).

Feedback that is progressive and immediate, aids a scaffolded learning approach, encourages and identifies areas for improvement, reinforces attainment and leads to a higher standard of final
outcome. Hounsell (2007) advocates that ‘well-crafted feedback can enhance learning in three significant ways:

- by accelerating learning;
- by optimising the quality of what is learned; and

Feedback to students is possibly more influential and important in students’ ability to learn than the impact of teaching itself. It is the role of the teacher in the assessment and feedback process that profoundly impacts on student learning. This is supported by Race’s (2007) comment ‘that feedback is the oil that lubricates the cogs of understanding’ in response to John Cowan’s statement that assessment is the engine that drives learning (2007 p. 74).

While teacher to student feedback is essential in the design disciplines, the interactive process of peer review plays a substantial and valuable role. The Web 2.0 has provided a tool that facilitates interaction and peer review but supports timely, accessible, motivating feedback opportunities, for teacher and student alike, and can be ‘intrinsically embedded in day-to-day teaching and learning activities’ (Laurillard, 2002 p.55).

The aim of this paper is to showcase a framework for using feedback (both giving and receiving) as a central core to learning, by providing students with scaffolded learning tasks in a Web 2.0 learning environment. This has encouraged proactive, anytime critique and commentary on peer work as well as furthering the teacher’s range of feedback options. The approach adopted is supported by the literature on feedback for learning. A particular emphasis in the approach adopted is the role of the teacher. Black & Wiliam (1998) assert in their studies that improving the teacher’s role in formative assessment can raise the standards of student performance. They point to the benefits of feedback that is specific, descriptive and immediate. They also argue that ‘the quality of the interaction [between pupil and teacher] … is at the heart of pedagogy’ (1998 p.16).

This paper identifies methods particularly suited to getting feedback on learning in the design studio class using a blend of face-to-face and online practical strategies. It describes an approach adopted using Web 2.0 technology. Building on our experience of the successful implementation of Web 2.0 for image exchange and peer interaction (Robbie & Zeeng, 2008), the authors have expanded their work to explore innovative and effective methods of feedback to improve engagement, motivation and learning.

2. Background
Design education is traditionally studio-based with emphasis on communication of ideas and visual outcomes. Within the studio, teachers critically analyse student’s concepts and suggest the most effective plan of action within the confines of designated class time. Teachers may look at a number of ‘drafts’ and suggest the best way to execute an effective, creative and aesthetically positive outcome. Students within each studio are involved in the process and give feedback related to their peers work. This is restricted to the small number present in the studio class only and not the entire cohort enrolled.

A traditional model of peer review is executed by having a wall “pin up” of work/ideas during class which allows the teacher and students to discuss each concept. This is undertaken on a regular basis throughout the design process. While in practice this experience is invaluable for student learning, in reality there are instances where insufficient individual feedback is received.

Similarly, in teaching design photography, students would capture and print their images for weekly feedback and critiquing in the smaller class groups. However difficulties occur when student’s experience technical or financial problems, resulting in work unable to be reviewed. This reduces the amount of feedback received, and unresolved or unseen problems impede the students’ learning process.

In photography classes, students are instructed in the basic elements of photography for design through lectures and studio classes. A one-hour intensive weekly lecture describes and exemplifies photographic techniques and genres. Students attend two-hour studio classes and undertake practical application of the technical knowledge and discuss expectations of the set tasks.

This is equivalent to the traditional format, however now with the addition of Web 2.0 the ways of delivering feedback can be vastly improved by extending the scope and availability of feedback for students. Face-to-face is a pivotal element of the studio classes and supports students to critically analyse the design process and improve their fundamental technical skills. This has also been extended in the Web 2.0 environment.

A new teaching and learning approach, implemented in 2007, predominately uses the opportunities offered by Web 2.0 technology (in this case Flickr). The online learning community within Flickr offered a variety of collaborative and engaging learning experiences for students.

Within this innovative teaching format, completed images are uploaded simultaneously to individual Web 2.0 pages plus the site for the whole photography community. Once uploaded the entire cohort of students and teachers can then critique and analyse the work of individuals. Assessment tasks
require students to make three comments/critiques per week on the work of their peers. They are encouraged to choose a variety of images each from a different student and preferably images from students who are not in their studio classes. This increases their scope of potential inspiration, improves their critical and analytical skills, and includes them as part of the broader community. They are expected to give constructive criticism, reflecting on the technical and aesthetic qualities of the image. These comments become an assessable portion of their semester’s work.

At the beginning of each semester students are given instructions, with accompanying suggested vocabulary, on how to analyse and critique the photographic image and the interaction expected from them during the semester. Lecturers and students can comment anywhere anytime on any image that becomes available on the group site. They are shown examples of the tasks they will need to fulfil. As each task is issued, further examples are shown and any technical considerations are demonstrated. The outcomes, expectations and the level of achievement are made very clear. Any student with concerns or misunderstanding can request feedback or clarification from teachers or fellow students via email or discussion boards.

Students can receive individual feedback/comments, from peers or teachers, on their images as soon as they are uploaded to the group. In the studio classes, a group style of feedback is delivered where examples of best practice of images from the cohort are viewed. Time in class may also be given to individual students when required or requested. Teachers undertake a weekly review to ensure that all students are receiving sufficient individual feedback. Together with this timely feedback, as each task is completed, teachers appraise the outcomes and make suggestions on how to improve or better resolve the task. The student can then act upon the teacher’s comments, review, edit or re-shoot the images then resubmit. This revised set of images can be further commented on by the teachers prior to end of semester hand in.

3. Method

An evaluation of student’s perception and effectiveness of feedback given was undertaken. The following key evaluation questions were identified:

- What do students feel about the feedback they receive?
- How do students use the feedback they are given?
- How can teachers improve the feedback they give?

Data was collected from centrally distributed student feedback surveys and anecdotal online and face-to-face discussions to find answers to the questions above. Specifically, the following data was reviewed.
1. Questions related to ‘feedback’ in the Student Feedback Surveys (SFS) conducted in 2007 and 2008 by the university

2. Anecdotal feedback within the unit discussion boards and in studio classes from students during 2007, 2008 and 2009.

3.1 Review of Student Feedback Surveys 2007 and 2008

At Swinburne University of Technology, the Strategic Planning & Quality (SPQ) unit administers the central Student Feedback Survey (SFS) on subjects and teachers. This survey provides feedback to academic staff on the delivery of subjects and on their teaching practice and provides a comparison across the university.

The survey asked students for feedback on curriculum, delivery and assessment. The question item related to this evaluation asks students to respond the question “I have received helpful feedback”, using a Likert rating scale of 6 where 1= ‘strongly disagree’ and 6=‘strongly agree’, and provide comments on the helpfulness of the feedback received.

The survey also asked students to rate the teaching in their units. One of the criteria is framed around ‘approaches to assessment and feedback that foster independent learning’. The question item relevant for this evaluation asked students to respond to the question “This lecturer/tutor provides helpful feedback on my progress” using a Likert rating scale of 6 where 1= ‘strongly disagree’ to 6 =‘strongly agree’ and provide comments on whether the lecturer/tutor provides helpful feedback on progress.

3.2 Anecdotal feedback from students in discussion forums (Flickr comments & forums)

During the semester students had the opportunity to give feedback to their teachers informally via email and discussions boards. Students actively provided feedback throughout the semester.

4. Results and discussion

Data from the SFS, on the question related to students receiving helpful feedback in their subjects, is itemised in Table 1. The score indicates the percentage of responses in agreement or strong agreement (that is, 5 or 6 on the Likert scale).

<table>
<thead>
<tr>
<th>Q. I have received helpful feedback</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photography Unit</td>
<td>85% agreement</td>
<td>100% agreement</td>
<td>96% agreement</td>
<td>98% agreement</td>
</tr>
</tbody>
</table>

Representative comments
- the assessments were relevant and helpful, I received useful feedback on submitted work (SFS 2009)
Flickr was very helpful and it was great having to give constructive criticism to others (SFS 2008)

The feedback on the weekly tasks gave me an indication of how I was going, how accurate my interpretations of the material were (SFS 2008)

Could also see other students work and comment on it helped me push myself further (SFS 2008)

Being online was great it allowed plenty of feedback from both teachers and students (SFS 2007)

In 2007, the standard mean, in a scale of 1 to 6, for photography was 5.32, which was above the university average mean of 4.51 (i.e. mean across the 6 answer options). In 2008, the standard mean for photography was 5.08 again, well above the university average mean of 4.58. The SFS for 2008 shows a minimal drop possibly due to increased numbers of student responses than previous years but it is still higher than in 2006 before Flickr was introduced. In 2009 the average mean of 5.16 continues to be higher than the university average mean of 4.54. A high rating of feedback has been sustained over the 3 years that Flickr has been used for teaching and learning.

Data from the SFS on the teacher providing helpful feedback on progress is itemised in Table 2. The score indicates the percentage of responses in agreement or strong agreement (that is, 5 or 6 on the Likert scale).

Table 2. Responses to SFS on the question “this lecturer/tutor provides helpful feedback on my progress”

<table>
<thead>
<tr>
<th>Q. This lecturer/tutor provides helpful feedback on my progress</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photography</td>
<td>93%</td>
<td>95%</td>
</tr>
<tr>
<td></td>
<td>agreement</td>
<td>agreement</td>
</tr>
</tbody>
</table>

Representative comments

- I was able to approach her for help when I needed it and I found this very helpful in my studies (SFS 2009)
- Provided personal feedback to get better photos (SFS 2009)
- Every week we receive great feedback on our tasks (SFS 2008)
- Helpful feedback has inspired me (SFS 2008)
- Teacher used some good methods to teach (sic) us, when we’ve got problem we can get feedback what we’ve required (SFS 2008)

In 2008, the standard mean for the teacher in photography was 5.20 significantly above the university average of 4.70. In 2009 the standard mean was 5.21 and again higher than the university average of 5.08.
Most comments received anecdotally throughout the semester, related to regularity of feedback, timely responses of teachers and ideas to improve their understanding. Feedback from students indicated that viewing and reviewing images, receiving and making comments had improved their learning. This suggests that the activities within the blended learning environment had raised their skills of critiquing and analysing and supported them in understanding creative photography, design principles and practices. Examples of the type of comments students provided included:

- This is a great way to learn what makes a great photo. Having to critique your pictures as you take them as well as other peoples is good for this. (Flickr discussion forum 2008)
- I could spend hours on here looking at everyone’s photos. I find that because of Flickr where we can access anyone’s photos at anytime I am learning from the people who are more advanced comments are always helpful because I am getting feedback from someone else’s perspective and they will notice things about the photo that I wont. (Flickr discussion forum 2009, semester one)
- The comments have been useful. Through making them, I have been able to improve my analysis skills and work out how to put my opinions and thoughts into words. It has also been valuable having other people's opinions on my own images. (Flickr discussion forum 2009, semester two)

In reviewing the formal and anecdotal feedback it is apparent that student’s valued the diversity of feedback they received and were able to use it to improve their camera technique, and analyse and critique their own and others images. In particular, the feedback that assisted their learning was:

- from peers and teachers;
- regular and immediate;
- received through a variety of media and modes;
- verbal and/or written;
- not about the individual but the work they have done;
- shared across larger cohorts of students rather than small class groups; and
- contributing to improved learning and not just on what they have achieved.

The type of comments students valued most related to feedback that focused on and for their learning. Students responded more positively to commentary that provided information on their achievement and performance with suggestions for improvement and enhancement to guide further learning.

The following comment is one example of feedback on-learning

- you’ve captured the movement and high energy of urban areas really well with this blazing trail of light leading off into the distance. Composition is very good, with the lights leading our gaze down the road and towards the blue skyline. (Flickr comment student to student 2009, semester one)

The following comment provides an example of feedback on and for learning

- This is a really interesting colour shot. I like the contrast between the blue orange and yellow of the background. The only thing that would make this even better is if the background were cropped so that the full on colour of the background didn’t break up toward the back of the shot with the pink and green interrupting the flow. (Flickr comment student to student 2009, semester one)
The teacher and student focus on feedback for and on learning has produced extremely successful and effective outcomes. Findings so far suggest that this two-tiered feedback has been very valuable in contributing to increased motivation and enthusiasm for learning. It also highlights the importance of feedback that:

- is communicated clearly;
- is discursive and relevant;
- is shared, valued and encouraged in a community;
- informs practice; and
- contributes to improved learning outcomes.

5. Conclusion

In this research we explored strategies for acting on feedback by evaluating students’ perceptions on the guidance and feedback they receive. We discussed the types of feedback students like to receive for guidance and motivation. In the process we have identified strategies that students possess for ‘using’ feedback and how they interpret the feedback they are given.

A review of how students use the feedback they receive did highlight a concern. Students tended to use the feedback to look back at what they’ve done rather than how the feedback could contribute to further learning. While students commenced the semester with a view that feedback was a summary of what they have done, this new approach provided a framework for them to use it to advance their learning.

A change in the teachers approach, frequency, timeliness and type of feedback has encouraged very positive reactions from students throughout the semester. This study on students’ perception on feedback has shifted the nature of feedback given by the teacher from feedback-on-learning to feedback-for-learning. Studies by (e.g. Black & Wiliam, 1998; Brinko, 1993; Ende, 1983) and others, along with the AUSSE report (2009), helped inform a paradigm shift where feedback, given and received, was not just about achievement on student learning but also for improved learning.

The positive responses from students on the feedback given has encouraged us to share our experiences with other staff to explore opportunities for feedback in multiples aspects of their teaching i.e. studio classes, online forums, and email exchanges.

At the end of each semester a review of the current unit and lessons learned inform new developments. Conducting student focus groups with new cohorts of design students to compare perceptions and responses from previous years is underway. To date we believe we have fully exploited the Web 2.0
features available in the Flickr social software and are keen to trial some new generation technologies to further support and improve feedback mechanisms.

Current ideas under consideration include the use of audio feedback to allow teachers to incorporate tone into their feedback and perhaps assist in reducing the workload experienced in written feedback. The use of auto response systems such as Opinio polls and Votapedia are also being explored. We are of course extremely mindful that we do not jump on the bandwagon and use any new technology just because it is available. Our focus is to get the right mix and quality. We agree that it is ‘Better to turn a screw with a screwdriver than a hammer — a dime may also do the trick, but a screwdriver is usually better’ (Chickering & Ehrmann, 1996). The next stage of our work will discuss how we have worked towards finding the right ‘screw’ or ‘screws’ for giving feedback.

References