Peer Reviewed Screencasting as an Assessment

Mark Caukill
Nelson Marlborough Institute
of Technology
mark.caukill@nmit.ac.nz

Clare Atkins
Nelson Marlborough Institute
of Technology
clare.atkins@nmit.ac.nz

ABSTRACT
Over a period of three years, a final year undergraduate course on Computer Networking was redeveloped to take account of up to date technology. As a result of this it became necessary to rethink the way in which part of the practical assessment was conducted to ensure that it was both relevant, authentic and a realistic challenge in the time available. This poster describes both the problems that were faced in covering appropriate content in the course and focuses on the peer-reviewed screencasting solution to assessment that was trialed. The paper concludes with some thoughts on future development and a recommendation to other educators.

Categories and Subject Descriptors
K.3.1 [**Computers and Education**]: Computer Uses in Education – *collaborative learning, self-assessment.*

General Terms
Documentation, measurement, verification.

Keywords
Screencasting, assessment, peer review, information technology education, VMware, NetApp.

1. INTRODUCTION
In the Information Technology industry change often happens very quickly and sometimes unpredictably. Consequently, IT educators are constantly reviewing, adapting and renewing their course content attempting to maintain a balance between industry relevance and conceptual underpinnings in the belief that this will best position their students to take their place in a constantly evolving workplace.

Often the kind of learning that is required to keep abreast of a discipline undergoing such rapid change does not fit well with traditional methods of assessment. IT educators are increasingly having to look for innovative methods to assess a wide range of both practical skills and new content by using the technology itself to enable such assessment. A wide range of such methods have been adopted by the Digital Technologies team at Nelson Marlborough Institute of Technology (NMIT). However, screencasting as a means of assessment had not been tried before 2011.

A screencast is a short, narrated, screen capture video. It is a method often used to demonstrate and talk through a series of tasks completed on a computer screen e.g. tutorials or software demonstrations. It will often include "panning or callouts to emphasize areas of the screen or actions taking place" (UBC, 2012). Ruffini (2012) describes it as "a multimedia alternative to video recording, (which) is easy to use, and helps fill a need for dynamic, engaging content." There are a number of screencasting applications ranging from proprietary commercial packages to

freeware and there has been considerable interest in their value as an educational tool for teachers. However, the use of screencasting as a means of assessing student learning is much less widely reported, Shafer (2010) is one of only a few that could be found.

This poster reports on how and why peer-reviewed screencasting was introduced to assess students in a final year IT course. It describes the problems that screencasting assessment was trying to solve and how the solution may develop over future iterations of the course delivery.

2. BACKGROUND
NMIT offers a three year Bachelor of Information Technology degree with three possible specialities. One of these is termed 'ICT Infrastructure' and is focused on the design, implementation and management of computer networks. The emergence of both cloud computing and virtualisation has had a major impact on the content of the courses within this specialism.

NET701 is a level seven advanced networking course and is compulsory for those students who wish to major in ICT Infrastructure. In line with major changes taking place in the IT industry, the content was changed in 2011 to focus on virtualisation and storage. Software, and teaching and learning material from two vendors: VMware Inc, and NetApp Ltd. were to be used. The initial four weeks would be spent learning and understanding scalable storage on NetApp storage appliances and software, the NetApp vSim virtual machine, and NetAppU teaching and learning material. The remainder of the course would follow the format and content of the VMware "vSphere: Install, Configure, Manage" commercial course. NMIT is the first, and in 2013 was the only VMware IT Academy in New Zealand and was able to provide this teaching as a VMware IT Academy (vITA) member institute.

3. THE PROBLEM
It was accepted that the best practice for summative assessment of the course content would be 'assessment as learning' rather than 'assessment of learning'. The emphasis needed to be on assessing the students as they practised what they were learning. We also wanted to make the marking of the assessments less time consuming and more efficient, yet retain fairness and a high quality level.

4. THE SOLUTION
A number of suggestions were considered on how to engage students with the content while ensuring that the necessary labs were completed in a timely manner and that the assessment of the learning could take place naturally and without creating undue stress and pressure.

What was needed was something that required the students to:

- do all the labs,
- demonstrate one or more labs (but not in class time), and
- watch, and learn from, what the other students had done

Screencasting had the potential to fulfil these expectations. This would allow the student to do all the required labs, then focus on a small subset to produce a practical demonstration which could then be uploaded to the internet and watched out of class time.

This would mean that every student would do all the labs, and then do one or more of them again in order to create their screencast. It was decided that each student would do two screencasts; one of the storage (NetApp) labs, one of the virtualisation (VMware) labs. The labs would be randomly allocated by the lecturer. The screencasts were to be made available on Youtube. However, as each student was only demonstrating a small part of the total covered lab material, we wanted to ensure that they also watched all the other screencasts too.

There was a logistical issue around making it worthwhile for the students to do this, and also (and not unimportantly) reduce the marking load on the lecturer. It was decided that if the students peer marked the screencasts it would add value to their learning in various ways. First of all, it would ensure that students would not only complete each lab but also re-visit each one either for creating their own screencast or to view others. It was expected that this double exposure to the lab content would be beneficial in both understanding and retaining the important concepts that were covered (Li, Liu & Steckelberg 2010). This would also provide the opportunity to let them consider the lab content from another perspective, which is peer to peer learning in action. Secondly, it would encourage them to watch all the screencasts attentively in order to provide useful critical commentary for their peers. Thirdly, it would give them the experience of critiquing material from a technological and experiential point of view. It would also assist the lecturer by reducing the marking workload.

It was recognised that peer marking has its negative aspects; issues such as favouritism, carelessness, distortion and the trading of marks can be problems (Kao, 2013). In addition, experience would suggest that clear marking criteria have to be supplied to the markers. To counter some of these potential issues additional criteria were added to the assessment. Firstly that the students had to evaluate the other screencasts based on a specific rubric that was provided. Secondly, constructive comments from the peer marker to the producer were expected, hence strengthening the chance that the attention would be paid to the material. It was also made clear that the lecturer would be viewing all the material, and could over-ride any outlier results.

The marking rubric provided to the student is not original but has been adapted from one by Floyd Pentlin (2012) from the University of Central Missouri and incorporating ideas from the many others found online. This particular rubric centres on the technical aspects of the screencast itself. As there was also a requirement to follow a specific list of objectives in each lab, this was added to the final schedule. Following the Pentlin approach, an attempt was made to put boundaries on the screencasts to help guide the students on what was and was not required: scope, time, and focus.

- Scope: screencast tutorials of their assigned NetApp and VMware labs.
- Time: between three and nine minutes long.
- Focus: aim was to create a tool for students and teachers to use in learning how to accomplish the set of technical tasks.

4.1 For Staff (Peer Review and Screencasting Treatment)

A Moodle quiz was used as a platform to allow the students to easily mark their peers' productions. This was not quite the optimum format, but it did make the collating of results simpler and quicker than a paper based system.

The students were instructed to make the recorded lab generic. This was because they were using proprietary lab material from NetAppU and VMware, and as such could not be followed by rote for the screencast. Also, the skillset required for producing a good screencast goes outside of those typically embodied in an IT student.

4.2 For Students (Student Reactions and Feedback)

For the majority of students, this was the first time they had produced a screencast, in addition to being their first foray into YouTube postings. There was some trepidation about this, illustrated by comments such as: "It's my first screencast so apologies if it's bad lol" and "Try not to laugh too much!"

The students' feedback is that screencasting takes a considerable amount of time to do only a basic recording, let alone a good quality one and hence that the assessment should possibly be worth more.

5. CONCLUSION

Screencasting offers a very relevant and authentic means of judging and rewarding student learning. The need to provide positive feedback encourages all students to closely observe the work of their peers and provide timely and supportive commentary and ensures a much higher level of engagement with the course content than had previously been the case.

The results seemed to confirm the efficient, yet powerful result of this form of assessment for this course, and the 2014 delivery will follow the same path. The authors would certainly recommend investigating the value of screencasting in similar technical courses.

6. REFERENCES

Kao, G. Y.-M. (2013), Enhancing the quality of peer review by reducing student "free riding": Peer assessment with positive interdependence. British Journal of Educational Technology, 44: 112–124.

Li, L., Liu, X. and Steckelberg, A. L. (2010), Assessor or assessee: How student learning improves by giving and receiving peer feedback. British Journal of Educational Technology, 41: 525–536.

Ruffini, M. (2012). Screencasting to engage learning. EDUCAUSE Review Online. Retrieved from http://www.educause.edu/ero/article/screencasting-engage-learning

Pentlin, F. (2012) Audio Visual Applications - Screencasting Overview. Univeristy of Central Missouri website retrieved from https://5260.wikispaces.com/01.29-02.04+Screencast+AV

UBC (2012). Screencasting. University of British Columbia. Retrieved from http://wiki.ubc.ca/Screencasting

Shafer, K. (2010). The Proof is in the Screencast. Contemporary Issues in Technology and Teacher Education, 10(4), 383-410. AACE. Retrieved September 26, 2013 from http://www.editlib.org/p/32347.