Comparison analysis of the online lecture formats of *PowerPoint* and Webpage for online students

Daniela Signor
Faculty of Higher Education, Lilydale
Swinburne University of Technology

While many studies have been conducted on students' experiences when comparing face-to-face teaching to online teaching, these have not focused solely on the delivery format. Many lectures have simply been placed online from the equivalent on-campus version and are in the *PowerPoint* format, and so do not use the online medium to its best advantage. This study will look at online students' opinion of a *PowerPoint* lecture, a Webpage lecture and their comparison.

This paper reports on the outcomes from two surveys taken by online students, enrolled through Open Universities Australia, studying an introductory Swinburne University IT unit. This study will evaluate the delivery format of the online learning lectures with the aim of improving the online learning material. The findings indicate that online students prefer Webpage to *PowerPoint* for text-based online lectures.

Keywords: Virtual space, online lecture, *PowerPoint*, webpage

Introduction

> But for any given instructional strategy, some technologies are better than others: 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, p3).

This study is to find the best 'screwdriver' for online students.

CIS11 Information Methods is a unit offered by Swinburne University, Open Universities Australia, and is offered fully online. CIS11 is an introductory unit for most students and has an equivalent on-campus unit, taught using traditional face-to-face lectures. Most of the online students are working full-time and will access the site at a time suitable to them, so the material must be easily accessible. During the initial development of the online version, all learning materials from the on-campus unit were transferred into Blackboard (Swinburne's Learning Management System). At the time, extra notes where added into the *PowerPoint* lectures, in an attempt to replicate the extra information that a lecturer would add during the lecture presentation.

Unhappiness with the format of the online lectures created in *PowerPoint* is a recurring theme in the feedback survey responses from online students over the last three years. Comments such as:

> Printing out *PowerPoint* is quite frustrating … Student 2008

> A lot of the time they're just text spread over many slides, which isn't a good format for online reading … Student 2008

> using .ppt files to present dot point text seems silly… Student 2008

> no need to put every lesson into *PowerPoint* slideshows, I found it more useful to copy the information I needed into Word so I could read and print notes using less pages. Student 2008

These comments and others led to this current investigation into other possible formats for online lectures. A simple alternative format of a Webpage was selected as the format to use to retain the text-based nature of the lectures. This format will create the foundation for the learning material and can used to build on more interactive internet features such as blogs and online polling. We need to make sure however that the technology does not become more important than the pedagogy of online teaching. As Ascough (2002) states, "Too often the delivery of online courses is driven by what the technology can do" (p21). Reisetter & Boris (2004) also support this view of technology by adding, "at least one study has shown that as more channels of information (such as video) are added, the less satisfied learners report they are" (p279). We need to view the technology as a tool and not the desired result.

Accessing Webpages does not require any additional learning or software for the student. Jones-Kavalier & Flannigan (2006) inform us that, "Our students are natives to cyberspace – they are digitally savvy. No longer does it suffice for a teacher to retype overheads into *PowerPoint* and have students take notes" (p9). This skill of being digitally savvy may not be true for the teaching staff, where training or support staff may be needed.

Webpages offer a variety of features that can enhance the delivery of learning material for online students such as hypertext, graphics, sound, video and embedded links while remaining in the same software. The interaction and visually eye-catching nature of many website's front pages add to the online students expectation for online delivery. Atan, Rahman & Idrus (2004) support these features and state they assist in developing diverse types of learning materials. Holmes & Gardner (2006) expand on the usefulness of the embedded links in the dissemination of information.

An environmental and economic issue faced by students wanting a hard copy of learning material is the cost and paper used when printing. The *PowerPoint* lectures contained, on average, 20 slides with most slides having additional notes, requiring at least the full 20 pages when printed. The equivalent Webpage lectures were a single complete html document that, on average, was 6 pages long when printed.

Evaluation methods

For both, the first lesson (only in the first week of the semester) and last lesson (only in the last week of the semester), students were offered their online lectures in two formats: *PowerPoint* and Webpage. Students were asked to view both formats, and to respond to an anonymous, voluntary online survey. Each survey contained 25 questions with a mixture of multiple choice questions and open-ended questions.

For the first survey, the students were asked for their opinion of these two formats and the most preferred format was then used for the rest of the online lectures. There were 239 students enrolled in CIS11 during the course of this study (Semester 1, 2009). 177 students completed this first survey giving a response rate of 74%. The preferred format was Webpage (65%) and accordingly, all following online lectures were offered in this format.

The survey was offered again during the last week of the semester, when students were again offered their lesson with online lectures in both formats. It was considered that now that the students had more experience with learning online, their preferences may have changed. At this stage, only 140 students were active participants in the unit. (This is not unusual for a first stage online unit, where many students enroll but do not complete the unit and is an issue outside the scope of this paper). 42 students completed the second survey, giving a response percentage of 30%. Given that students were preparing for their final examination when this survey was available, this is actually a higher response rate than was expected, and compares well with response rates reported by other authors. Responses to web based surveys vary widely, with the global average being in the order of 30% (Dommeyer et al, 2004).

Results

Just over half the students were studying online for the first time with most students rating their skills with computers, *PowerPoint*, WebPages and internet browsers as average or high at the start of the semester. 10% of students rated their *PowerPoint* skills as low - this rating could impact on how well students were able to view and use the first lecture in the *PowerPoint* format. It is also a concern as no training is given to students in the unit on the use of *PowerPoint*. Students rated their skills again at the end of the semester, and it was encouraging to note that no students rated their skill levels as low. It was also rewarding to note the percentage of students that now rated their skills as high had increased.

A series of multiple-choice questions asked students for their preferred format when completing various common activities with online lectures. The results for both surveys are presented in Table 1, where arrows indicate the direction of the change, whether an increase ⇧ or a decrease ⇩ in percentages between surveys.

Table 1: Preferred format of online lecture delivery for common activities (at start and end of semester)

Activity	Survey	*PowerPoint*	Webpage
Easiest to read onscreen	1	43%	57%
	2	40% ⇩	60% ⇧
Easiest to print (Note Survey 1: 52% & Survey 2: 25% ⇩ - chose – 'did not print')	1	28%	20%
	2	35% ⇧	40% ⇧
Easiest to use immediately	1	28%	72%
	2	20% ⇩	80% ⇧
Easiest to learn from	1	38%	62%
	2	30% ⇩	70% ⇧
Easiest to navigate	1	33%	67%
	2	20% ⇩	80% ⇧
Better amount of information	1	30%	70%
	2	18% ⇩	82% ⇧
Easiest to search for information	1	26%	74%
	2	24% ⇩	76% ⇧
Easiest to download (Note Survey 1: 28% & Survey 2: 18% ⇩- chose – 'did not download')	1	37%	35%
	2	24% ⇩	58% ⇧
Used the least memory space on computer (Note Survey 1: 67% & Survey 2: 72% ⇧ - chose – 'did not download or did not know')	1	8%	25%
	2	0% ⇩	28% ⇧

The responses all indicate an increase of preference for the Webpage by students for these activities. *PowerPoint* has only one increase, that of easiest to print, however WebPages were still preferred. In all other activities, students reported a strong preference for Webpages, and the preference became stronger over the semester. In all other activities, the preference for *PowerPoint* by students decreased over the semester.

A second group of multiple-choice questions asked students their opinion on the key common features of both formats: the summarising of information (bullet point slides) in *PowerPoint*, the use of internal hyperlinks within the webpage (ie incorporation of a Table of Contents in each online lecture). Both surveys showed over 50% preference for both these features. Given this result, the Webpage files were updated to include a 'Key Summary' box, to replicate the popular *PowerPoint* feature.

A summary of student responses to open-ended questions are presented in Table 2.

Table 2: Key aspects students liked and disliked in *PowerPoint* and Webpages

Like about…		Dislike about…	
PowerPoint	Webpage	*PowerPoint*	Webpage
Printing Presentation Concise summary	Navigation (Table of Contents) Easier to read More Information	Brief Information Printing used too much paper Harder to navigate and find information	Printing Links Amount of Information

It was interesting to note that while the amount of information provided to the students was the same in both formats, many students perceived the *PowerPoint* version to contain less information than the Webpage version.

Both surveys ended with the simple question asking which format the students wanted. In Survey 1, the results were *PowerPoint* format: 35% and Webpage: 65%. In Survey 2, the results were *PowerPoint* format: 24% and Webpage: 76%, showing that student preference for the Webpage format grew over the semester.

Discussion

With the Internet now providing tools such as Blogging, Wiki spaces, Virtual Worlds, Audio and Video Presentations, it may seem strange to revisit this simple issue of text-based online lectures. However, learning material is still presented in the majority by the written word. This foundation needs to be done correctly, only then can the learning materials be expanded through the use of these new tools. This study also assists those new to the delivery of online learning material, to show that the first step can be a small one.

While *PowerPoint* is traditionally the preferred format for most teaching staff to deliver their face-to-face lectures, there are issues with the use of this format in an online delivery. *PowerPoint* encourages summarising of information with bullet points. (Hildebrand 2008). This factor can be balanced to some extent with the commentary from a lecturer in the face-to-face environment, and with interactions with the audience, but are wrongly emphasized in an online environment. This is supported by Kordel (2008) who adds,

> 'Most online courses rely on *PowerPoint* presentations – that is, bullet-point slides that could serve as lecture outlines if there were actually lectures. A notable element of *PowerPoint* (and all such systems) is the astonishing lack of informational density, yet few protest the reduction of a calculus or statistics lesson to relatively uninformative slides.' (p11)

The online delivery of *PowerPoint* can also lead to abrupt changes of topics, with no sense of connection or flow. This connection is normally supplied by the lecturer in a face-to-face lecture but is often found missing online. This can lead to difficulty in recalling where information is located in online learning materials.

Using a Webpage format however offer solutions to these problems. The dynamic nature of this format allows for a presentation of a lecture more suited to the online environment. As Lancaster et al (2005) state, transferring the slides from the face-to-face version is easy but to retain the dynamic aspects, the web version needed more. Atan et al (2004) advise incorporation of hyperlinks to other resources as a method to provide more to the online student, which is a feature easily incorporated within a Webpage.

In a Webpage , the connection of topics can be made more evident, with the progressive of topics shown as a student scrolls down the Webpage. Features such as a dynamic linking of topic titles in a Table of Contents can make finding information in the learning material relatively easy for the student.

Given that the format of Webpage offers many benefits for the online delivery of lectures, you now need to consider what comes next. Horton (2000) states the importance of writing for your medium, in this case, the online environment of a webpage. It is not the same as writing for a textbook or lecture printed handout. Horton explains this situation with the following analogy,

> 'This is a bit like taking up jogging but not bothering to buy new running shoes: you *can* run in ordinary sneakers, but you won't run as fast or as far (and you could hurt yourself). Make the extra effort to style your textual materials to fit the genre.' (p48)

Research in the presentation of online learning material is continuing with the advent of new technology and an increase in our understanding of learning and technology. Pomales-Garcia & Liu (2006) expand with, "It is clearly an important research challenge to understand the effects of Web-based distance learning design factors on both the performance and the aesthetic/appearance judgments of the users" (p164)

While it is important to emphasise that technology should never overshadow teaching and learning, the benefits technology have provided for online learning are undeniable. Jones-Kavalier & Flannigan (2006) have investigated the literacy skills needed for today's technology and state the need to understand all the tools on offer, so that the best choice for delivering online learning materials can be made. While this paper is focused on the presentation of content, the underlying principles of the research has been on assisting the online learning material to aid in learning.

Conclusions

> The greatest challenge is moving beyond the glitz and pizzazz of the flashy technology to teach true literacy in this new milieu. (Jones-Kavalier & Flannigan, 2006, p9)

Every aspect of online learning involves technology, and with the advent of new technology and new versions of existing technology, the importance of learning has often been overtaken by the aspects of technology. Added to this, is the assumption that technology used for face-to-face teaching could simply be transferred to online teaching with no or little alteration, means we have a growing divide between good teaching online and good delivery of online lectures. As Ascough (2002) so clearly states, "Thus, it needs to be recognized up front that online learning is different."(p18)

This paper examined a simple issue: the format used for delivery of online lectures. To bring it to an even more basic component, this paper examined only text-based lectures, examining the two popular formats; *PowerPoint* and Webpage, and found a strong preference among students for the ease and added features of the Webpage format.

This attention to a single simple issue is advised by Ascough (2002) as stated by, "It is only to suggest that for an online learning environment to allow learning to occur attention must be paid to the specific nature of the medium"(p18). This is further supported by Van Dam (2002) as stated by, "However, e-learning design excellence requires a deliberate, explicit choice of the right method for the level of learning desired"(p38). So, by paying attention to this simple issue, the foundation for the online lecture can be made strong, and an appropriate support to any new 'spaces' that are built upon this foundation.

To achieve online design excellence from a deliberate explicit choice to achieve a high level of delivery for online learning material, I found the answer to a single specific question of what online learning material format of *PowerPoint* or Webpage is preferred by online learners. The Answer is Webpage!

Acknowledgments

The author is grateful for the time and feedback provided by students undertaking CIS11 in 2009. I would also like to thank Debbi Weaver and Luisa Signor for their feedback during preparation of this article, and especially their sincere support throughout this process.

References

Ascough, R. S. (2002). Designing for online distance education: Putting pedagogy before technology. In *Teaching Theology and Religion*, Vol. 5, No. 1, pp. 17-29

Atan, H., Rahman, Z. A. & Idrus, R. M. (2004). Characteristics of the web-based learning environment in distance education: Students' perceptions of their learning needs. In *Educational Media International.* Routledge

Chickering, A. & Ehrmann, S. C. (1996). Implementing the seven principles: Technology as lever. In *AAHE Bulletin*, October, pp. 3-6

Dommeyer, C.J., Baum, P., Hanna, R.W. & Chapman, K.S. (2004). Gathering faculty teaching evaluations by in-class and online surveys: Their effects on response rates and evaluations. *Assessment & Evaluation in Higher Education*, 29(5), 611-623.

Hildebrand, D. L. (2008). *Technology in Teaching Opportunities and Compulsions.* viewed at DavidHildebrand.org

Holmes, B. & Gardner, J. (2006) *e-Learning Concepts and Practice.* Sage Publications, Great Britain

Horton, S, 2000, *web teaching guide*, Yale University Press, USA

Jones-Kavalier, B. R. & Flannigan, S. L. (2006). Connecting the digital dots: Literacy of the 21st century. In *Educause Quarterly,* No. 2.

Kordel, R. (2008) Information presentation for effective e-Learning. In *Educause Quarterly.* 4(31).

Lancaster, C. J., Mauldin, M. P., Gilbertson, B. O., Darden, P. M. & Kittredge, D. (2005). How we changed from paper to online education: Teaching immunization delivery and evaluation. In *Medical Teacher.* Vol. 27, No. 8, pp. 682-685

Pomales-Garcia, C. & Liu, Y. (2006). Web-based distance learning technology: The impacts of web module length and format. In *American Journal of Distance Education.* Vol. 20, No. 3, pp. 163-179

Reisetter, M. & Boris, G. (2004). What works student perceptions of effective elements in online learning. In *The Quarterly Review of Distance Education.* Vol. 5, No. 4, pp. 277-291

Van Dam, N. (2002). E-learning by design. In *e-learning.* January, viewed at http://www.elearningmag.com/

Author: Daniela Signor, Swinburne University. Email: dsignor@swin.edu.au

Please cite as: Signor, D. (2009). Comparison analysis of the online lecture formats of *PowerPoint* and Webpage for online students. In *Same places, different spaces. Proceedings ascilite Auckland 2009*. http://www.ascilite.org.au/conferences/auckland09/procs/signor.pdf