



VOLUME 9 ISSUE 1

The International Journal of

# Designed Objects

---

## Sustainable Fashion Design Education

Designing Virtual Online Teaching  
Resources for Flexible Delivery

KIM FRASER AND ANGELA FINN

**THE INTERNATIONAL JOURNAL OF DESIGNED OBJECTS**  
www.designprinciplesandpractices.com

First published in 2014 in Champaign, Illinois, USA  
by Common Ground Publishing LLC  
www.commongroundpublishing.com

ISSN: 2325-1379

© 2014 (individual papers), the author(s)  
© 2014 (selection and editorial matter) Common Ground

All rights reserved. Apart from fair dealing for the purposes of study, research, criticism or review as permitted under the applicable copyright legislation, no part of this work may be reproduced by any process without written permission from the publisher. For permissions and other inquiries, please contact [cg-support@commongroundpublishing.com](mailto:cg-support@commongroundpublishing.com).

*The International Journal of Designed Objects* is peer-reviewed, supported by rigorous processes of criterion-referenced article ranking and qualitative commentary, ensuring that only intellectual work of the greatest substance and highest significance is published.

# Sustainable Fashion Design Education: Designing Virtual Online Teaching Resources for Flexible Delivery

Kim Fraser, Auckland University of Technology, Aotearoa New Zealand  
Angela Finn, Auckland University of Technology, Aotearoa New Zealand

*Abstract: In an environment of economic uncertainty and increasing competition, universities are challenged to find alternate methods of maintaining quality educational outcomes given the rising costs for teaching space. Further, in countries such as Aotearoa New Zealand, geographical isolation from the international research community remains a key issue. The development of virtual learning environments (VLEs) is promoted as a viable solution, particularly methods of narrated lecture slides and video-casting which have the potential to be re-used and offer more flexibility through online delivery. As part of an on-going teaching and learning research fellowship project at Auckland University of Technology, this paper discusses the specific case of an undergraduate course which was developed using Microsoft™ PowerPoint™ and Screencast-O-Matic. Each approach is analyzed in the context of developing and delivering course content via Blackboard Academic Suite™ in combination with low cost technologies including Skype and YouTube™. While the freedom to tinker with new technologies, particularly in fields of creative practice such as fashion design, provide an opportunity for ‘visionary innovation’ (Finn and Fraser, 2012), the authors identify opportunities and limitations, which warrant consideration for academics who are considering a higher level of engagement with technology to enhance teaching practice.*

*Keywords: Fashion, Virtual Learning Environments, Higher Education, Distance Education, Flexible Learning, Sustainable Design*

## Introduction

This action-based research focuses on exploring the evolution of teaching practice within the university environment through the incorporation of freeware and low cost platforms such as Screencast-o-Matic ([www.screencast-o-matic.com](http://www.screencast-o-matic.com)) and Skype ([www.skype.com](http://www.skype.com)). This project is a part of on-going research exploring the use of technology in everyday teaching practice through a series of case studies conducted at Auckland University of Technology (AUT) since 2007 (Finn, Fraser, and McArdle 2013; Finn and Fraser 2012a; Finn and Fraser 2012b, 2012c, 2012d, 2007). This phase of the project involved using four different methods to create digital content incorporated into the delivery of a paper entitled “Design for Sustainability”—a year II fashion and textiles unit which forms a part of the Bachelor of Design undergraduate course. The umbrella research project was the result of a *Teaching and Learning Fellowship* awarded to the authors in 2012. The aim of the research fellowship project was to explore the possibility of using technology to enable more flexible delivery options for potential fashion students who are currently only able to study at the university in full-time internal study mode. The planned introduction of a major/minor structure was the starting point for this research particularly as flexible delivery would be the best solution to ensure that students from each of the majors could choose sustainable design beyond the current limitations of timetabling within the school. The majors include; product design, spatial design, graphic design, fashion design, textile design and digital design. It was also important to find ways to maximize the uptake for a minor in the area of sustainable design as it is a research specialization for the authors and meets the requirements of the strategic plan of the university.

## Technology to Enhance Teaching and Learning

The existing landscape for the use of technology in teaching fashion was polarized at the start of this research. At one extreme the teaching spaces were equipped with outdated technology (overhead projectors which used photocopied transparency sheets), contrasted by AUTOnline as a web based portal powered by BlackBoard Academic Suite™ (BlackBoard). The introduction of digital projectors within a single fashion teaching space, and later in several of the fashion studios created an increased demand for digital content as an expected part of the course material. The use of AUTOnline as a digital filing cabinet had slowly evolved into something slightly more – particularly for example, as a means of delivering additional content (extra reading material). In short the functionality of BlackBoard was ignored (or overlooked) as a result of the clunky ‘look and feel’ of the interface – an important aspect for teaching and learning within the design disciplines (Finn, Fraser, and McArdle 2013). An additional consideration was the ease of use of AUTOnline. While the basic functions of accessing course content were user friendly, the higher end functionality such as Collaborate (Elluminate) sessions were not as straight forward which led to the question: are there alternative web based platforms or more accessible low cost software which could be used to create content which is more dynamic? How do such platforms translate into teaching practice? The outcome is that there is a place for these platforms but each has its own advantages and consequences within the teaching environment.

## Creating Static Content for Potential Re-use and Flexible Delivery

In developing a minor in sustainable design for the Bachelor of Design course at AUT, one of the advantages of committing to a deeper engagement with technology was having the opportunity to internationalize the course content. The geographical isolation of Aotearoa New Zealand has been discussed as contributing to an idiosyncratic view of world issues in terms of sustainable design (Molloy 2004). Discussion of sustainable design within a New Zealand context is therefore complex in terms of population size and density, lifestyle and physical isolation from the northern centers in the UK, Europe and America. Nevertheless profiling the significance of un-sustainable practices within the fashion industry, from the perspective of the designer, is worth examining within the context of design education in general. An opportunity to consider the relationship between *teaching* sustainable practices and *sustainable* teaching practices—enabled by developing teaching resources with potential for reuse, was a secondary focus for the research practice. This could be achieved by creating a video of a lecture to be accessed online via a web portal, thus allowing students a degree of flexibility in accessing the lecture material. This is not a new idea – many teaching institutions utilize the method of recording lecture presentations. This allows students to access lecture material following the lecture; to catch up on content they have missed or to revisit material they did not understand the first time around (Hurst and Waizenegger 2006; Jones, Maramba, Kamul Boulos and Alexander 2009). In this instance the concept of a pre-recorded lecture was developed for use in a classroom environment in one case, and to explore flexible delivery in another. This provided some relevant insight into the research practice of developing content using various technologies.

The first stage of the project engaged with the development of a professional video for use as a semi-permanent, re-usable resource. The experience and findings of this stage of the research (Figure 1: The WhisperRoom experience) are discussed elsewhere in detail so will be discussed quite briefly within this paper (Finn & Fraser, 2012b). The main outcome of this stage was the realization that the professionally produced video method, while resulting in a distinctly higher level in terms of quality, was problematic for other reasons. Aside from the obvious emotional challenges involving the permanence and self-consciousness around how the lecturer looks on the screen, the dynamics of teaching ‘to camera’, rather than being recorded teaching within the normal lecture environment, adversely affected the normal confidence of experienced teaching

practice. The WhisperRoom experience was also a “black box” process. The lecturer/tutor is required to make a presentation in a blacked-out, ad hoc studio space to the video camera in place of students within the classroom environment. The results of the session are not seen for some time during which the downloading and editing process is being undertaken. The timeframe is dependent on several factors but it could be expected that a considerable length of turnaround time—in our case this took up approximately 3-4 weeks—would be required to develop this type of teaching resource. The inability to get instant feedback and the time involved in the preparation and development (and rehearsal) of material for the pre-recorded video was limiting within the timespan allowed for this live teaching project. The video that was developed was unedited, due to the time constraints, and was not used as a teaching resource but did form an important aspect of the research practice. There are therefore obvious limitations for this method if development of online resources becomes standard practice within the university: the lecturer must be willing to become knowledgeable in the area of video editing and consideration must be given to allocating adequate time for preparation of online teaching materials (Copley 2007, Larraga and Coleman 2007, Jones, Maramba, Kamul Boulos and Alexander 2009, Mugwanyana, Marsden and Traxler 2010)



Figure 1: The WhisperRoom Experience (Finn and Fraser 2012a)

## Creating Content for Flexible Delivery

Observations which were made as a result of an action research methodology, led to a second cycle of experimentation with potential alternate methods of creating content for teaching for flexible delivery. One of the key issues had been the specialist nature of working with a team to develop the content. Whereas, what we were really hoping for was more control by the lecturer to enable a more ‘do it yourself’ nature to the process. The Centre for Teaching and Learning recommends the online software Screencast-O-Matic ([www.screencast-o-matic.com](http://www.screencast-o-matic.com)) as a useful addition to the WhisperRoom process. The software was free to download and offered a basic method to create a videocast through recording via a webcam and microphone (now standard on most laptop computers). The resulting video can be exported as either a video file or can be uploaded directly to YouTube™ ([www.youtube.com](http://www.youtube.com)) where it can be accessed via a private or non-searchable link. To facilitate our teaching we created a set of accounts (including a YouTube™ account: “finn&fraser”) where we can load teaching materials and then link to the content via AUTOnline (BlackBoard Academic Suite™) environment.

Screencast-O-Matic ([www.screencast-o-matic.com](http://www.screencast-o-matic.com)) offered great potential for use as a tool to develop short snippets of content which could be used to contextualize other material, particularly resources which are available on the internet, for the purposes of the course of study being undertaken. The research project called for the software to be extended beyond its usual purposes, particularly in terms of the level of professionalism that was sought. The process of creating videocasts in the style of how we might teach in front of the classroom was different as well. The permanence of the video, the potential of video to “go viral” for example, the background, the lighting, the appearance of the lecturer/performer all became considerations. The amount of preparation and design of lecture content was far greater than for a normal teaching

session with 5 minutes of videocast sometimes taking several days to produce. The advantages were that the student could access the content at any time and could interact with comments through a wiki<sup>1</sup> which was established to work with this content (Finn, Fraser, and McArdle 2013). The choice to upload content to YouTube™, and in particular to show existing YouTube™ video through re-screencasting, also raises questions around Intellectual Property (IP) which have relevance for the effective use of this method.

Following the development and testing of several videocasts created using Screencast-O-Matic, the observation was made that the large amount of preparation time, and the design and set up of content for the screencasting sessions, combined with a period of learning the software, was too intensive to warrant extensive use of this as a viable alternative to classroom teaching. The key advantages of the experiment were to explore and identify if the software offered a solution for replacing a teaching session as an alternative for one week of teaching over the semester. The method was also used to develop a screencast that demonstrates how to create a video using the software. This is an example of the type of content that is reusable. This contributed to an increased engagement from students and a change to the way that the assessment could be submitted; with some students electing to develop their own screencast in place of a traditional class presentation. The method of screencasting resulted in some good outcomes in terms of teaching practice: offering a better outcome for flexible delivery. However, the extensive time and effort required in producing the materials limited its effectiveness for generating reusable content and was a less effective means of developing content for a more dynamic presentation.

## **More Dynamic Platforms for Use in the Classroom**

A dual aim of this study was to explore technology as a method of bringing international guests into the classroom; the use of pre-recorded lectures was an obvious starting point. Following our own experience of creating video content we decided to be flexible about how our international colleagues would prepare their presentations for virtual delivery. The format chosen to deliver these presentations was designed as a ‘mini-conference’ with six sessions. The method of delivering content within these sessions alternated between in-person presentations; pre-recorded content delivered online; pre-recorded content delivered in the classroom; Live Skype session with a single presenter; and a live Skype Premium session with 3 presenters. Table 1.1 shows an overview of the presentation methods, the preparation tasks and required software, the effectiveness and observations of the use of each method. This phase of the project included the use of the familiar desktop application, Microsoft™ PowerPoint™ with voice over narration; along with utilizing low cost conferencing technologies like Skype™.

---

<sup>1</sup> A wiki in BlackBoard Academic Suite™ provides an interactive Web page that can be viewed and modified by students and staff.

Table 1.1: Analysis of Different Platforms

<i>Presentation Method</i>	<i>Preparation Required</i>	<i>Effective Usage</i>	<i>Observations</i>
<i>WhisperRoom Experience</i>	Scripting, Lecture Slides, Use of iPad app as an autocue	Not used	Would require substantial set up and investment (time and resources). Would be more useful for content which was reusable (the context of this test was not suitable for this method)
<i>Screencast-O-Matic uploaded via YouTube</i>	Lecture slides, working space, lighting, notes, practice sessions,	Effectively used to deliver content both in the classroom and online	Key issue was large amount of preparation and reliance on a single take. The method of could be useful once the lecturer becomes an expert at working within the limitations of the software. Free and easily accessed in an enormous advantage.
<i>Narrated PowerPoint Slides</i>	Lecture Slides, script, timings, practice sessions	Effective use in classroom environment. File transfer was problematic and caused a syncing issue between sound and slides	The file size was the main issue resulting in a less transportable medium. The file for a 20 minute presentation had to be delivered via the web in 4 separate files. The sound was corrupted during the session so the files were played separately.
<i>PowerPoint presentation as .pdf File combined with Live Skype Session</i>	PowerPoint slides, background, lighting, location (noise), broadband connection	Effective in theory	Main problems were encountered with peak usage times and bandwidth. Skype performed well in short tests but failed in the classroom.
<i>PowerPoint Slides with Document Share view of Live Skype Premium session</i>	PowerPoint slides, background, lighting, location (noise), broadband connection and Skype Premium Account	Effective in theory	Problems in the classroom and the document share had to be abandoned part way through the session. Worked well in short tests but bandwidth and longer session length caused failure (seemed to be maximum 20 minute session). Also limited by international time differences. Skype Premium did have a fee attached but was generous in providing a day license option.

The exploration of different delivery methods resulted in live testing of several free-ware platforms, including Skype™ (Figure 2) which had been planned for the study. Problems arising from the research practice led to further experimentation with low cost software such as Skype Premium™ and the development of narrated PowerPoint presentations. The latter was equally time intensive to produce although somewhat easier than screencasting; however both methods relied on a perfect take to enable them to be considered completed. The file size for the narrated PowerPoint slide proved to be an unexpected consideration. The 117MB presentation slide file had to be divided into 3 sections, sent via an online file sharing platform, and reconnected on arrival. This resulted in a corruption with the sound and meant that the three files had to be played separately in order for the presentation to work. The result of having an expert presenter is not diminished here, just that the extra time and effort that was required by the presenter (and any stress involved throughout the process) were more than would be reasonably expected when the project was first proposed. The method of Skype offered the greatest advantages largely as a result of a more dynamic and impermanent nature. Although there were problems with the

session, the network was not equipped to deliver the bandwidth required; it seemed closer to a natural method of using technology within the classroom to enhance both the teaching practice and the learning experience.



Figure 2: Researcher Tullia Jack Appearing in an in-Classroom Skype™ Session at the Mini Conference

## Conclusion

An independently conducted survey to gather student feedback on teaching revealed that students preferred a balance between the online methods (flexible) and in classroom content. This is consistent with other studies that have found “no significant difference” (Yoshimura 2010, 740) between the face-to-face and virtual learning experience from the student perspective and that “e-learning activities complement, rather than replace, traditional forms of learning” (See López-Pérez, Pérez-López, and Rodríguez-Ariza 2011, 824). The student satisfaction levels for this paper were greater than expected with 98% of students stating that they would recommend this paper and 94% of students satisfied with the level of technology used for teaching this paper. Students enjoyed the interactive nature that was introduced, with many comments indicating the value of incorporating international speakers and real life examples to develop an understanding of sustainable issues in the fashion textile industry; although the predominant theme throughout their comments was online accessibility, expressly to re-visit video content for further revision. This action-based research focused on exploring the effectiveness of existing low cost technologies through in-classroom trials. Specific combinations of software packages were analyzed based on their performance in a live teaching environment and the limitations have been identified and discussed. Some combinations demonstrated potential opportunities for enhancing the teaching and learning environment, but the authors note that these are only effective if the minimum requirements for hardware and network capabilities within the specific teaching environment are met. The exploration of these specific low cost packages meant that content was able to be elicited from international experts for specific delivery into the classroom, enabling content that would otherwise not be possible. However, a realistic assessment of the capabilities and the time required to redesign and develop such digital resources needs to be a consideration (Jones et al 2009, Mugwanya et al 2010).

The introduction of various forms of digital content that engaged students through an interactive, online approach also enabled the combination of some self-directed/flexible learning options that were integrated into the overall teaching structure. The method of screen casting was very useful to contextualize content available through YouTube™, via YouTube™ itself. This had the advantages of offering students a means of accessing related video, while at the same

time encouraging a wider exploration of any topic from the lecture that the student considered to be more interesting than other content. An additional benefit of this flexible format and style of lecture delivery was that staff were able to travel and present at an international conference during the teaching term, with no detriment to the student experience. Aside from problems related to infrastructure, the merit in establishing digital content is dependent on its reusability. Teaching staff and students have differing perceptions of what flexible content entails; where the authors considered the reusability of media as highly important and desirable; student comments revealed a desire for accessible, downloadable content that could be used for further revision. The investment and additional planning involved in developing this type of content and teaching materials that have the potential to be used more than once, is worthy of further exploration. The time investment in lecture capture was well spent in relation to understanding the possibilities of incorporating this type of digital technology into the classroom environment. Nevertheless, the investment of time (in training, designing and producing digital content for flexible online delivery and for in-classroom use) must be tailored to the specific learning outcomes for each unit. This must be factored into planning and time allocation for the teaching staff; both within the institution and for international contributors to teaching via Screencast-O-Matic and YouTube™, Skype™ or Microsoft™ PowerPoint™ presentation.

## Acknowledgements

The authors would like to acknowledge the staff at the Centre for Teaching and Learning at Auckland University of Technology for their on-going support, encouragement and belief in this research project. None of this research would be possible without the *Teaching and Learning Fellowship* and the *Learning and Teaching Enabled through Technology* funding granted to the authors in 2012. Specific acknowledgement is made to Auckland University of Technology research assistant and post graduate student Aych McArdle without whom many of the web postings, images and documentation of this project would not have been to such a high standard. The exploration of these technologies would equally not have been possible without the highly knowledgeable and highly skilled researchers who contributed to our study by taking part in the “Design for Sustainability” mini-conference programme. Special thanks to Alison Gwilt (Sheffield Hallam University, UK), Alice Payne (Queensland University of Technology, Australia), Tullia Jack (University of Melbourne, Australia) and Holly McQuillan (Massey University, Wellington, NZ) who all spent considerable time and effort in creating and delivering virtual presentations.

## REFERENCES

- Copley, J. 2007. "Audio and video podcasts of lectures for campus-based students: production and evaluation of student use." *Innovations in Education and Teaching International*; November. 44(4) 387-399.
- Finn, A, and K Fraser. 2007. "The Big Picture—an Integrated Approach to Fashion Design Education." In *Fashion Industry New Zealand (FINZ) Annual Education Conference : The Broader Perspective of Design*.
- Finn, A, and K Fraser. 2012a. "Contemporary classrooms: Exploring Blackboard Academic Suite™ and virtual teaching spaces for fashion education." In *EduLearn12 Proceedings* 3792-3798.
- . 2012b. "Engaging with technology: Exploring Blackboard Academic Suite™ and virtual teaching spaces for design education." In *International Conference of Education, Research and Innovation(ICERI 2012) Proceedings*.
- . 2012c. "The Big Picture: Developing a Sustainable Design Minor for Online Virtual Delivery." Paper read at Fashionably Early Forum of the Australian Fashion Research Network, at National Library of Australia, Canberra.
- Finn, A, K Fraser, and A McArdle. 2013. "Enhancing the Online Learning Experience: Ad Hoc customisation of Blackboard Academic Suite™." In *INTED2013 Proceedings*, 1426-1435.
- Hurst, W, and W Waizenegger. 2006. "An overview of different approaches for lecture casting." Retrieved from [www.iadis.net/dl/final\\_uploads/200605F008.pdf](http://www.iadis.net/dl/final_uploads/200605F008.pdf)
- Jones, R, I Maramba, M Kamul Boulos and T Alexander. 2009. "Use of Live Interactive Webcasting for an International Postgraduate Module in eHealth: Case Study Evaluation." Retrieved from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2802565/>
- Larraga, L and D Coleman. 2007. "Video podcasting is not as hard or as expensive as you think." Retrieved from <http://dblp.uni-trier.de/db/conf/siguccs/siguccs2007.html#LarragaC07>
- López-Pérez, M, M Carmen Pérez-López, and Lázaro Rodríguez-Ariza. 2011. "Blended learning in higher education: Students' perceptions and their relation to outcomes." *Computers & Education no. 56* (3):818-826.
- Molloy, M. 2004. "Cutting edge nostalgia: New Zealand fashion design at the new millennium." *Fashion Theory*, 8 (4):477-490.
- Mugwanya, R, G Marsden and J Traxler. 2010. "Pragmatic podcasting: Facilitating podcasting in developing HEIS." Retrieved from [http://www.academia.edu/2810711/PRAGMATIC\\_PODCASTING\\_FACILITATING\\_PODCASTING\\_IN\\_DEVELOPINGHEIS](http://www.academia.edu/2810711/PRAGMATIC_PODCASTING_FACILITATING_PODCASTING_IN_DEVELOPINGHEIS)
- Park, J. 2011. "Design Education Online: Learning, Delivery and Evaluation." *International Journal of Art & Design Education*, 30(2), 176-187.
- Yoshimura, Miki. 2010. "Learner outcomes and satisfaction: A comparison of live video-streamed instruction, satellite broadcast instruction, and face-to-face instruction." *Computers & Education no. 55* (2): 733-741.

## ABOUT THE AUTHORS

***Kim Fraser:*** Senior Lecturer, Fashion Department, School of Art and Design, Faculty of Design and Creative Technologies, Auckland University of Technology, Auckland, New Zealand

***Angela Finn:*** Senior Lecturer, Fashion Department, Auckland University of Technology, Auckland, North Island, New Zealand

*The International Journal of Designed Objects* is one of six thematically focused journals in the collection of journals that support the Design Principles and Practices knowledge community—its journals, book series, conference and online community.

The journal examines the nature and form of the objects of design, including industrial design, fashion, interior design, and other design practices.

As well as papers of a traditional scholarly type, this journal invites presentations of practice—including documentation of designed objects together with exegeses analyzing design purposes, purposes and effects.

*The International Journal of Designed Objects* is a peer-reviewed scholarly journal.

ISSN 2325-1379

