USING FILM TO DEMONSTRATE PRACTICAL SKILLS IN A BLENDED LEARNING ENVIRONMENT

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ABSTRACT

Technologies now exist that allow films to be packaged for browsers, DVDs and distance learning. A strategic orientation for use of this medium should be considered, particularly when the subject matter is of a mainly visual and instructional nature. There are limited resources in this area, both in academic and professional use, though teaching through the medium of film is long established and The Open University is well known for its excellent and professional use of both distance learning and video/film use. Historically the expense involved in creating film, access to broadcasting media, resources for filming and editing were not easily available and distribution was limited to tape. With the transition to more intensive delivery modes, increased blended and distance components and reducing costs of media resources it will be efficient to make more and better use of this medium.

This paper describes the creation of a pilot film to investigate the benefits of using film in areas of teaching where practical demonstration is necessary. The film presents some of the material normally delivered via studio/workshop tutorial. It also records student experience, evaluation and results concluding with recommendations for future development.

The film is delivered to students as part of their tutorial but also as part of the managed learning environment, Blackboard. Strategically this area has a huge scope for development as it allows e-focused delivery. Longer-term development of this pedagogy could lead to a wider development of similar techniques within the University, using existing staff and facilities.

Keywords: model making, film, distance learning, blended learning, demonstration

1   INTRODUCTION

Until recently students on first year programmes which include model making, were taught the appropriate skills through a series of live demonstrations, which needed to be repeated to accommodate several tutorial groups. The detail and close up view that a student needs to see is often difficult to achieve within a tutorial group, typically 20 students or more. In addition, students who have missed a session have found it hard to catch up, since the tutorial/practical is mainly demonstration. The availability of the film as support teaching material, using Blackboard, has addressed part of this problem. The amount of detail and challenge for the students is increased by using this method of presentation. Students already need to work at their own speed on this type of task and

the change in delivery has given the students more responsibility for their own learning and task management.

2   COGNITIVE CONTEXTS

Cognitive research has recorded differences in cognitive processing between the right and left hemispheres of the brain.   The left focuses on deductive, logical tasks associated with oral and written media.   The right hemisphere undertakes non-sequential, intuitive tasks such as visual media, for example the visual and sound attributes of film [1]. Cognitive theory indicates that students process visual and verbal media with different cognitive systems, the left and right hemisphere, and that the use of visual, oral and written teaching material will engage both brain hemispheres [2]. Using a variety of media with students will stimulate different representation systems and cognitive processes resulting in different learning inputs [3]. Emotion research demonstrates that emotional brain functioning has a preference for images, metaphors, and narratives [1].

Robert Gagne [4], a behaviourist, investigated the information processing view of learning and memory. He developed five categories of learning; model making would be included in the motor skill category and demonstrated by physical performance.

Table 1 Gagne's instructional events aligned with delivery of pilot film

Gagne's instructional event	Objective of event	Stage in model making, using film
1 Gaining attention	To get the learner into an expectant state	Verbal brief on film and model making task
2 Stating the objective	To get the learner to understand what they will be able to do as a result of the instruction	Provide written description of task and brief with learning objectives and clear guidelines
3 Stimulating recall of prior learning	To get the learner to appreciate that they posses existing relevant knowledge	Verbally remind of relationship to other modelling techniques already learnt
4 Presenting the stimulus	To expose the learner to the content	Show film in class and make available via Blackboard
5 Providing learning guidance	To get the learner to understand the content	Replicate motor skills demonstrated in film
6 Eliciting performance	To get the learner to demonstrate what they have learned	Use motor skills to complete 2 simple modelling tasks, submit for assessment
7 Providing feedback	To inform the learner about their performance	Assessment feedback, formative and summative
8 Assessing performance	To reinforce the learning	Group critique of task outcomes and feedback
9 Enhancing retention and transfer to other contexts	To get the learner to indulge in varied practice and to generalise the new capability	Encourage to use for other model making projects and appropriate modules/subjects

Gagne developed an instruction method that used nine sequential instructional events that could be used on all five categories and each step has been aligned with the process of the pilot model making film.

3   RELATED FILM RESEARCH

The Open University has been at the cutting edge of distance learning and use of video for many years. The development of T211, a 60 point course, Design and Designing, in 2003 was more radical than just an update on its predecessor module. T211 took account of student profile similarities and promoted learning through design as well as about design with 'design principles that can be observed, learnt and applied'. The learning materials use text, case studies, iterative programs, existing software and audio visual material to support the student learning experience. The audio visual material includes video sequences of design activity such as sketching and card modelling. Feedback from the first cohort indicated the video sequences as 46% very useful with a further 40% as fairly useful. Allowing the students to study, replay, reflect and compare outputs, Garner suggests, could be a superior teaching method to face to face delivery [5]. The positive attitude of the students studying T211 is in agreement with students at the University of Glamorgan undertaking the pilot test described here. An authority on assessment and teaching methods, Phil Race, recommends the use of video to "demonstrate 'real' situations which would be impossible to convey in print, such as surgery, nuclear power generation and so on." [6]

Using audio and video resources in the classroom and then making them available via a web browser has been investigated at Fermanagh College and is used as a case study by JISC. The students at Fermanagh can view and hear practical demonstrations at any time. This has proved successful as a reinforcement for classroom teaching but also necessary for students who cannot get to teaching sessions in person. Other student benefits have been the ability to work at their own pace and improved participation in class, having understood the basic principles previously by accessing on line [7].

4   MAKING THE FILM

This project was initiated by discussion of ideas for the pilot film. Decisions restricting the scope and limitations of the pilot film were important as I am always tempted to be over-ambitious with projects. A lot of care was taken with the storyboard that described the main film content and its sequence, this included specific close-up shots. The care taken with planning meant that the demonstration was filmed within a couple of hours using a high quality digital camera. The reviewing of the shoot and editing decisions took some time and the editing was undertaken using Final Cut Pro, an off-line editor. The film was then compressed into an appropriate format and made available to students via Blackboard.

5   MODEL MAKING RESULTS

Eighteen students in a selected tutorial group were required to submit a range of model making solutions as part of an assessment, including models made from card, plastacine, foam-board, wood, metal, plastic and foam. The film was shown in class after an explanation of the assessment brief. Students were then left to complete the models but could contact a member of staff for help if required. The part of the assessment covered by the film did not generate many requests for additional help or explanation.
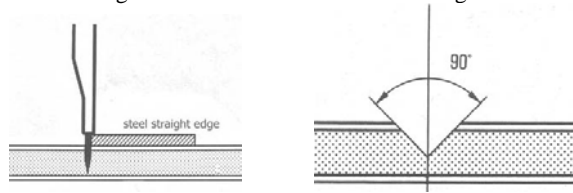
Figure 1 Foam board modeling exercise

Another tutorial group, of 20 students, was used as a control comparison and taught in a traditional way by demonstration. They undertook the same assessment exercise. The best submissions from both groups were of comparable quality however the traditionally taught control group had more weak and incomplete submissions. Interestingly the control group felt disadvantaged when they were told about the pilot film and requested access.

6   STUDENT FEEDBACK

An online questionnaire was created which students were requested to complete once they had seen the film and started the modelling assignment.

The questionnaire asked about possible improvements, advantages/disadvantages of using distance learning, preferences of delivery and suggestions for further use.

Table 2 questions asked for student feedback questionnaire with results

		Results
Improvements:	improve the voice over so that it is clearer and gives more information	78%
	addition of sub titles	56%
	longer film with more detail	33%
	include diagrams in the corner of the screen e.g.	56%
Suggestions for improvement		
Advantages:	Work at own pace	16%
	See the demonstration closer and in more detail than if it was demonstrated to a group in class	16%

	Available, can keep replaying – not having to rely on notes or memory	28%
	Pay more attention without having to be concerned about writing everything down for reference later	12%
	Give a better result i.e. model of higher quality	12%
Suggest subjects where this teaching method would be helpful		
Most effective delivery as:	Part of a lecture	0%
	Part of a lecture and then available after on Blackboard	50%
	Just available on Blackboard	0%
	Available on Blackboard plus introduction talk without showing film	30%
Other comments		

Student feedback - comments and suggestions for use:
- The film made the brief easier to understand and complete
- Would like to use Blackboard more in this way
- Would be good for use with geometry, modelling, workshop skills, project briefings, measured perspective and presentation techniques.

7   RECOMMENDATIONS

While making the film several lessons were learnt. It is really worth spending extra time in the planning/storyboarding stage before filming, this can save time editing later and also provide a better quality film. It is easier and more effective to record the voiceover after the final film edit as the spoken description is difficult to get right whilst filming due to synchronisation and background noise. Although the film can show more detail and close views than is possible in a tutorial, the use of diagrams and subtitles are needed to clarify the content and explanation.

Several research sources in the fields of media, learning and cognition suggest a positive effect on student learning with use of multiple media, visuals, diagrams and animation. Possibilities for development include animation; findings show that visualization of animation can create strong, lasting images of concepts and the exaggeration used in animated film can help link abstract concepts to visual symbols [8]. Currently several online animations are used with students to demonstrate a wide range of plastic processing within the materials and processing module [9]. These are popular with students and further research comparing filmed live demonstrations and the more diagrammatic technique of animation could be investigated.

8   CONCLUSIONS

In a proposal for a new model of design education in a post-industrial culture, Cross recommends a more open learning environment with increased, continuous and explicit accessibility [10].   This could be provided with a move to more intensive delivery modes including blended and distance components. Carman suggests that the use of blended learning may be more effective than completely relying on one teaching mode [11].

Bali's research in Germany and USA suggests that one hour of film-based instruction is equivalent to 3 hours of traditional lecture and there are also benefits of increased student motivation, attendance and participation with improved retention and understanding of concepts [12].

Students clearly found the film to be of benefit and prefer it to be shown in class first before being made available online. The most valuable benefit appears to be the availability and ability to replay. Inclusion of sub-titles, diagrams and voice-over is needed for maximum student benefit.

REFERENCES

[1]   Springer, Sally P. and Deutsch, Georg. *Left Brain, Right Brain: Perspective from Cognitive Neuroscience.* (W. H. Freeman, 1998).

[2]   Champoux, J.E. Film as a Teaching Resource. *Journal of Management Inquiry*, 1999, Vol. 8, No. 2, pp206-217.

[3]   Salomon, Gavriel and Snow, Richard E. Specification of Film Attributes for Psychological and Educational Research Purposes. *AV Communication Review*, 1968, 16, pp225–44.

[4]   Gagné, R. *The Conditions of Learning*. (Wadsworth Publishing Co Inc, 2004)

[5]   Garner, S. Distance Design Education: recent Curriculum Development at the Open University. Rodgers, Brodhurst & Hepburn, eds. *Crossing Design Boundaries*, *Proceedings of the 3rd Engineering and Product Design Education International Conference,* pp.377-381 (Edinburgh, UK Sept 2005)

[6]   Race, P. *53 Interesting Ways to Write Open Learning Materials*. (Technical and Educational Services Ltd)

[7]   *JISC Effective Practice with e-learning -Case Studies , Explore new concepts, Fermanagh College. (*HEFCE 2004)

[8]   Champoux, J.E. Animated Films as a Teaching Resource, *Journal of Management Education*, 2001, Vol. 25, No. 1, pp79-100

[9]   Retrieved May 5, 2008 from http://www.bpf.co.uk/

[10] Cross, N. Post Industrial Design Education, keynote address, *Proceedings of International Congress of Societies of Industrial Design (ICSID)*, pp1-7 (Seoul, Korea, 2001)

[11] Carman, J.M. Blended learning design: Five key ingredients (2002). Retrieved May 5, 2008 from http://knowledgenet.com/pdf/Blended%20Learning%20design_1028.PDF

[12] Bali, R.K. and Wickramsinghe, N. Using film to demonstrate academic concepts', *Int. Journal of Management in Education*, 2007, Vol. 1, Nos 1 /2, pp138-151

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