

論文 / 著書情報  
Article / Book Information

論題(和文)	
Title(English)	Effect of video design and content on students ' learning motivation
著者(和文)	曹 建霞, 西原 明法
Authors(English)	Jianxia Cao, Akinori Nishihara
出典(和文)	, , , pp. 669-670
Citation(English)	, , , pp. 669-670
発行日 / Pub. date	2012, 9
権利情報 / Copyright	本著作物の著作権は日本教育工学会に帰属します。 Copyright (c) 2012 Japan Society for Educational Technology.

# Effect of video design and content on students' learning motivation

Jianxia Cao Akinori Nishihara

Human system Science, Tokyo Institute of Technology, Tokyo, Japan

**Abstract:** Teacher's presence plays an important part in intriguing and keeping student's motivation and learning interest in slide video learning context. This paper investigates students' perception of teacher's presence in two slide video layouts, one with chroma key design, and one with lecturer's video portrait and audio synchronization using two learning contents. Layout is found having no significant difference on students' perceived learning motivation, while content does. Suggestion is made for video layout design and content selection.

**Keywords:** Multimedia Instructional design

## 1. Background

Open courseware is popular among students in universities. Most of these courses are uploaded accompanying a video. Video is now becoming a supreme form of transmitting educational resources for web-based self-paced learning.

Student can access streaming video from internet anytime anywhere. Multimedia learning has become one important part in student's daily life. Video is specifically produced to support education and we have only just begun to explore the educational possibilities of the medium (K Shephard, 2003).

## 2. Introduction

Effectiveness of video clip in education has been verified by many researchers. Most were concerned with the fact of video being the most appropriate or best medium for communicating particular ideas and concepts, either in terms of impact: "video tends to stick in students' minds for longer than a discussion does" or illustration: "provides evidence of techniques used in working situations". These findings offer a positive input as to the continuing viability of video as a teaching resource. Video is rated by the majority as "extremely useful"(Barford & Weston, 1997).

Hee Jun Choi(2005) investigated the potential of a constructivist approach to context-based video instruction for enhancing learning by comparing learners' perceptions of both video-based instruction and traditional text-based instruction in an online context-based lesson. They found that there was a significant difference in learners' motivation in terms of attention between the video-based instruction and traditional text-based instruction. In addition, the learners reported that the video-based

instruction was more memorable than the traditional text-based instruction. Context-based videos in online courses have the potential to enhance learners' retention and motivation.

## 3. Research question

Media interfaces offer a wide variety of modalities for interacting with systems. While each modality offers a unique way of interacting with information, it is not clear whether it brings unique psychological advantages(Sundar, 2010)

Regarding the effectiveness of online course, some researcher has claimed that learning in distance education equaled or surpassed learning in traditional courses (Verduin and Clark, 1991). Still some others (Smith, 1996) found that many students would not select distance education because they felt that it could not provide the learning they desired in a traditional course. And by interviewing with students, Alfred P. Rovai(2003) found out two reasons why students felt they would learn more in traditional course: human energy, charisma, personality and appeal generated by a good instructor, and second, the classroom creates an environment that is more responsive to their learning needs, such as a chalk board to clarify teaching points. One may feel tedious without the visual imagery one is likely to experience in face-to-face discussion when then instructor uses an object or chalkboard to reinforce a point. Instructor presence and social presence becomes hot issues in recent years.

Instructor presence is composed of three components, instructional design and organization (Garrison et.al, 1999), facilitating discourse, and direct instruction, verbal immediacy behaviors support the component of facilitating discourse.

Allen (2009) compared the social presence

of different online conferencing learning environments, experiments conducted by Short et al.(1976) and Rice(1993) ranked the social presence of video higher than audio.

Compressed video course delivery, which has less impact on immediacy behaviors, is indeed positively associated with student learning and satisfaction (Comeaux, 1995; Frietas, et al, 1998; Hackman & Walker, 1990). The main question is how to construct immediacy behavior in a virtual environment. While many people believe that to develop full motion video for the internet is a good way, but the technical difficulties make it from being widespread, thus the nonverbal immediacy behaviors is severely limited. For chroma key design in our research, we overcome this technique barrier and the instructor could move freely and have abundant body gestures, which is the novelty of this research and we believe it would cause stronger intimacy and higher perception of teacher's presence, which relates to learning outcome and satisfaction.

The purpose of this research is to investigate students' perception of teacher's presence under two different slide video contexts, and its interaction effect with content of affecting learning motivation.

#### 4. Experiment Procedure

Two kinds of slide video on "signal processing" are designed as followings. One is chroma key design which the instructor is standing in front of the slide and giving the lecture using a pointer, much like weather-report (see Fig.1). Another one is a picture in picture design using the lecturer's video portrait with audio synchronization made from BBFlashback software (see Fig.2). Size of these two videos is 720\*480 pixels.

Thirty students in Tokyo Tech participated in this experiment. They are randomly divided into two groups with 20 participants each, one watching the first chroma key design video and another group watching the BBFlashback video. After learning, they are asked to finish a posttest, a self-made questionnaire on their perceived teacher's presence and learning motivation.

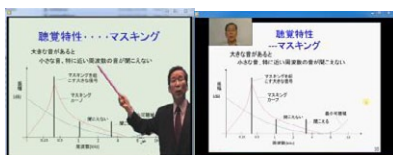


Fig.1 chroma key

Fig.2 Picture in picture

#### 5. Results

Before doing this experiment, we expected students' perception for chroma key design is higher than picture in picture design. However, t-test showed there was no significant difference on these two designs ( $p=0.9$ ). Out of our expectation, students' who assigned to signal processing course reported a higher sense of teacher's presence ( $p=0.04$ ). And there was significant interaction effect of layout and content design on students' perceived learning motivation. If the content is easy to understand and don't require deep processing instead of memorizing, picture in picture design is enough to catch students' attention. But if the content is complicated and need higher-order thinking and processing, chroma key design would contribute more to student's motivation.

Clark (1983) asserted that how the medium is used determines course effectiveness. We are also in favor of this claim, technology can promote learning effectively if it is used properly.

#### 6. References

1. Shephard, K. (2003). streaming video to support student learning. *British Journal of Educational Technology*, 34(3), 295-308.
2. Barford, J., & Weston, C. (1997). new university. *British Journal of Educational Technology*, 28(1), 40-50.
3. Hee Jun Choi, Scott D. Johnson, The effect of context-based instruction on learning and motivation in online course, *American Journal of Distance Education*, Volume 19, Issue 4, 2005.
4. Sundar, S.S., Xu, Q., Bellur, S., Jia, H., Oh, J., and Khoo, G-S. Click, drag, flip, and mouse-over: Effects of modality interactivity on user engagement with web content. In *Proc. International Communication Association (ICA)*, 2010.
5. Alfred P. Rovai (2004), *Blended Learning and Sense of Community: A comparative analysis with traditional and fully online graduate courses*, *The International Review of Research in Open and Distance* 5, ISSN: 1492-3831
6. D. Randy Garrison (1999), *critical inquiry in a text-based environment: computer conferencing in higher education, the Internet and higher education* 2, 2-3, 1999