The Effects of Synchronized Presentation Model: New Type of Web Based Learning System

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Abstract

This paper presents for a web-based learning system two models we have named the patterned frame model (PFM), and the synchronized presentation model (SPM).

1 : Introduction

Our vision is to create and evaluate several types of remote education in a live setting comparable to that of traditional classroom teaching. In this study we try to present two types of Web content model, each with a frame interface, the patterned frame model (PFM) and the synchronized presentation model (SPM).

2 : Two Models

PFM is a rapidly developing model that can be operated with a Web browser. With well-known authoring tools such as "Click2learn" and "Microsoft Producer," we have been able to create a template for the composition of windows by situating at least two frames. Figure 1a illustrates one such model with the teacher's live performance movie frame on the left side and his PowerPoint documents on the right side.

In general, this type of web presentation sometimes lacks for a dynamic sensation of unity because the synchronization of each side is limited by the events generated in the ppt (PowerPoint) files.

This is the case even if we replace the background using Chroma Key (a blue screen behind the teacher), with virtual and neat images representing an artificial classroom and its unified components (e.g., the teacher's body, a textual space, or other ornamental elements).

In order to overcome some of the weak points of the PFM, namely a lack of liveliness (presence) and high costs, our team devised a synchronized presentation model (SPM). Our innovation consists of a compound and dynamic presentation of the lesson scene. Instead of well-made but static presentation materials prepared in advance, we...
include a special window next to the lesson movie window to represent anything the teacher might wish to write. The script inside that window comes from a whiteboard (on the right side) and is perfectly synchronized with his voice and writing motions (on the lower left in Figure I-b).

We accomplish this using an authoring time-line tool to manually interlock the moving images representing the teacher in the classroom directly with the emerging document interpreted by a whiteboard capture device (such as eBeam, Mimio, etc). The result is that our synchronized presentation model (SPM) is better capable of transmitting the live atmosphere of the classroom to distance education participants.

3 : Evaluation and Comparison

In order to test the above hypothesis, we carried out an experiment to compare the two types of Web Based Learning (WBL) systems. A short lecture about the usage of French spelling letter marks was adapted for multimedia contents transmission to evaluate both PFM and SPM.

We demonstrated the two models to 51 graduate and undergraduate students who were then asked to mark assessment sheets on a scale of one to five to rate each of some factors we selected to evaluate the models. The data was examined by means of a Student's t-test to compare the mean of evaluation rates. This investigation revealed that on the whole PFM was a little more highly evaluated than SPM, perhaps because of the usage of Chroma Key which improved the quality of our PFM sample.

However, when one considers the basal conditions necessary to the online live classroom, it seems undeniable that SPM reproduces them more effectively than PFM as a browsing environment for the Web. As is shown in Figure II where we isolate assessment categories that clearly contrast the two models, SPM was favorably evaluated for "Presence," "Hand-made Feeling," and "Liveliness" with each registering a highly significant difference, (p<0.01).

On the contrary, PFM was judged to be a "Good-looking," "Useful to preparation," but "Formal" and "Artificial."

![Figure II: Evaluation of the two models](image)

3 : Conclusion

By analyzing these results, we conclude that the SPM is characterized by its capacity to simulate real classroom education by digitalizing the blackboard, an element of classroom experience that has been familiar from as far back as elementary school education.

But in reality, most Web contents used for distance learning fit the PFM. It cannot be denied that, in the final analysis there remains an educational trade-off between the advantages of PFM and those of SPM.

Further investigations will aim at measuring the effects of SPM by considering physiological indicators (such as using eye cameras or brain wave monitors). But on the other hand, using text-mining tools to analyze the free speech of SPM users might be also fruitful.

References

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