Gold Peach 1996-2001:

Series research in developing a learning web community

Tung-Xiung Wu

Department of Information Management, Shih Hsin University, Taipei, Taiwan, ROC

Abstract: This series research attempted to develop an interactive platform concerned with web community learning for children and to design a quasi-experiment to understand the users' learning behaviour. The series was conducted from 1996 to 2001. Five generations of web-human interaction and user interfaces have been developed and tested.

We found the 'web community model' was a better design for web-based learning. The internet culture was an essential factor to consider in terms of the idea of 'software internationalization'. Though we did not find a clear difference of learning achievement between users and non-users, we suggested that the concept of cultivation, which has a long tradition, deserved a new look.

Key words: web-based learning, interactive learning environments, web community, culture and cultivation

1. INTRODUCTION

This series research was divided into two stages, and attempted to address the following specific objectives:

First, to develop an interactive learning platform 'Gold Peach' for children based on the fundamental ideas of 'web community'. This stage was begun in 1996. There were five generations of web-human interaction and user interface which were developed and tested.

Second, to design a quasi-experiment including 3 primary schools to test the usability and to observe the learning behaviours in using 'Gold Peach'. Two pre-tests and an interval test were undertaken. This stage was begun in 2001. The experiment is still on-going.

The original version of this chapter was revised: The copyright line was incorrect. This has been corrected. The Erratum to this chapter is available at DOI: [10.1007/978-0-387-35615-0_52](https://doi.org/10.1007/978-0-387-35615-0_52)

D. Passey et al. (eds.), *TelE-Learning*

© IFIP International Federation for Information Processing 2002

During the research, we also initiated discussions on 'culture' and 'cultivation' features for developing a web-learning environment.

1.1 Web community

Web community was a progressive and extended concept arising from the 'network-based learning community' that was introduced by Lave et al. (1991) 'situated learning' concept and modified by Qiou (1996). In recent years, researchers both from the fields of education and information systems have contributed specific ideas on how to build a web-based learning community from these various points of view. Reviewing relevant literature, the author brought together a new 'web community model' as shown in Figure 1.

Figure 1. Web community model

1.2 Quasi-experiment

An experiment was conducted in the spring semester of 2001.

- Two small primary schools UJ and JM that were within the same location and of similar size were designed to be the quasi-experimental groups. One control group XK primary school was chosen with the same profile as the quasi-experimental groups.
- Students of third to sixth grade were designated users. One class of each grade was randomly selected from UJ and JM, while two classes of each grade were chosen from XK.

- All groups took the same learning materials and the same tests before and after training. The two quasi-experimental groups used Gold Peach as an enhanced learning web community, while the control group followed traditional classroom learning.
- Natural science materials were defined as the core task of the learning goal. All groups' learning achievement tests were measured 3 times, once a month, during the experimental programme.
- A training course was prepared for the teachers of the experimental groups. This training presented the necessary knowledge and skills to run the web community for teachers. The teachers' capability on using computers and their motivation on participating in the web community were also measured as further references.

Students' learning achievement was examined using ANOVA techniques. The author found no differences between the students of the 3rd, 5th, and 6th grades. There was a $P=.004$ significant difference found for the 4th grade (shown in Table 1). The mean scores indicated the learning students were even better than the web community learning students (shown in Table 2).

	SS	df	MS	F	P
Between	1242.352	1	1242.352	8.753	.004
Within	16037.855	113	141.928		
Total	17280.207	114			

Table 1. Significant difference demonstrated for 4th grade students

	N	Mean	SD	SE
Experimental	61	77.8525	14.3115	1.8324
Control	54	84.4383	8.4100	1.1445
Total	115	80.9449	12.3118	1.1481

Table 2. Mean scores arising in experimental and control situations

The author wanted to identify whether the difference was derived from one extraordinary school in the experimental group. Comparing the F test with ANOVA, there was no difference between the two schools.

Next, we found no particular factor related to the two classes' teachers. The factors which were considered included teachers' age, seniority, computer capability, participating motivation, etc.

However, we could not find any strong evidence to support the view that traditional learning is better than web community learning. After checking overall variables, we suggested that the difference came about as a result of a small number of students and their individual learning behaviour. We could not show that the learning environments in this experiment had made a clear

difference. We considered that the experiment was too short to detect any cultivation effect.

2. DISCUSSIONS AND CONCLUSIONS

The web community could be considered as a progressive idea leading towards a learning environment. It appeared to improve traditional teaching and display, and created total participation and interaction.

Three generations of the user interface were developed during the past few years. It revealed that there needed to be an introspective consideration in terms of the cultural features of web design. We did not find a balance between cultural skill and modern technique until the 3rd generation was created.

The effort to discover the 'cultivation of use' effect was still happening in the developmental period. Since cultivation is more likely to occur after a time series rather than its being a sudden change, the authors also suggest a large scale and longitudinal experiment on this issue in future studies.

REFERENCES

- Lave, J. and Wenger, E. (1991) *Situated Learning: Legitimate Peripheral Participation*. London: Cambridge University Press
- Qiou, G.-F.; (1996) *Situated Learning Concept and Computer Assisted Learning*. Taipei: National Normal University Press.

BIOGRAPHY

Tung-Xiung Wu's focus is on the interdisciplinary research of technology and social sciences. He has directed a research series on developing a web-based learning community 'Gold Peach', and has consolidated an aesthetic engineering process for electronic publishing. He has initiated the survey knowledge management systems and applied it to two longitudinal studies: voting behaviour studies, and e-commerce and cybercitizen studies. He teaches and undertakes research for the Shih Hsin University and the National Taiwan University.