GOLD PEACH 1996-2002: SERIES RESEARCH ON DEVELOPING A LEARNING WEB COMMUNITY

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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 2002. 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

INTRODUCTION

This series research was divided into two stages that attempted to access the specific objectives as follows:

First, to develop an interactive learning platform 'Gold Peach' for children based on the fundamental ideas of 'web community'. This stage was conducted since 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.

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

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)'s 'situated learning' 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.

Most of existing learning websites are in centralized model that the web managers are also in charge of providing learning materials. On the contrary, the web community model is a distributed design. The web manager is only responsible for the maintenance of web mechanism while there are external moderators in preparing and guiding learning materials according to different subjects. The learning behavior in this model is an interactive community more than a top-down website.

'Gold Peach', this experimental learning environment, is developed by the idea of this model.

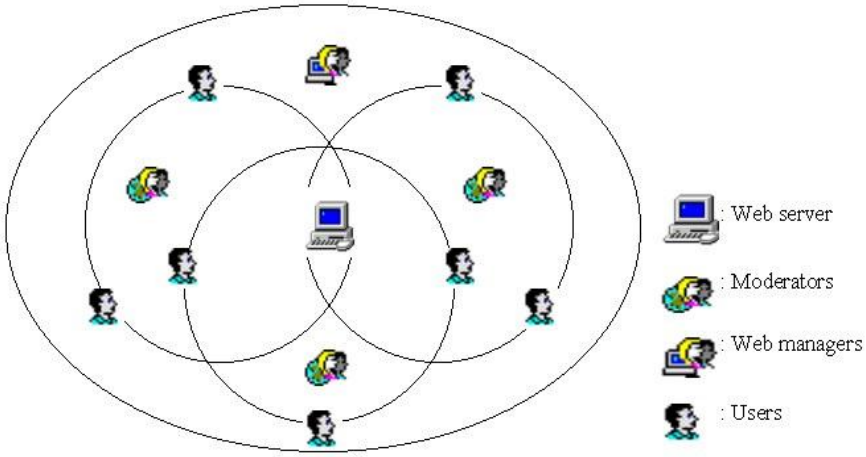

Figure 1. Web community Model

QUASI-EXPERIMENT

A longitudinal quasi-experiment was designed and conducted from the spring semester of 2001 (also see Wu, 2002).

- 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 used 'Gold Peach' took the same learning materials and same tests before and after training. The two quasi-experimental groups used Gold Peach as an enhanced supplementary 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 every year, during the experimental program.
- 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.
This series study is still going on.

FINDINGS

Year 2001

In year 2001, 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 2). The mean scores indicated the traditional learning students were even better than the web community learning students (shown in Table 1).
The author wanted to identify whether the difference derived arose from one extraordinary school in the experimental group. Comparing the F test with ANOVA, there was no difference between the two schools.

	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 1. Mean scores arising in experimental and control situations, 2001

	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 2. Significant difference demonstrated for 4th grade students, 2001

Year 2002

In year 2002, the author found no differences between the students of the 3rd, 4th, and 5th grades. There was a P=.003 significant difference found for the 6th grade (shown in Table 4). The mean scores suggested the web community learning students' learning achievement were better than the traditional learning students (shown in Table 3).

	N	Mean	SD	SE
Experimental	62	80.3290	9.4946	1.2058
Control	64	73.8719	13.7918	1.7240
Total	126	77.0492	12.2623	1.0924

Table 3. Mean scores arising in experimental and control situations, 2002

	SS	df	MS	F	P
Between	1313.058	1	1313.058	9.313	.003
Within	17482.437	124	140.987		
Total	18795.495	125			

Table 4. Significant difference demonstrated for 6th grade students, 2002

A P=.042 significant difference was also found for the 3rd grade between the two schools (shown in Table 6). The mean scores indicated the students of JM's learning achievement were better than UJ's (shown in Table 5). There is no difference for the other grades between the two schools.

	N	Mean	SD	SE
UJ	31	64.3763	19.2692	3.4608
JM	29	73.1264	12.3051	2.2850
Total	60	68.6056	16.7362	2.1606

Table 5. Mean scores arising for 3rd grade students in two schools, 2002

	SS	df	MS	F	P
Between	1147.186	1	1147.186	4.327	.042
Within	15378.701	58	265.150		
Total	16525.887	59			

Table 6. Significant difference demonstrated for 3rd grade students in two schools, 2002

In 2001, we found no particular factor related to the two classes' teachers. The factors considered included teachers' age, seniority, computer capability, participating motivation, etc.
However, in 2002, all participant teachers of JM have been changed since the change of the school's President and their administrative policy, while the teachers of UJ remained the same. The new teachers were much younger and less senior than the former participants.
To sum up the overall information, we wanted to be careful and could not suggest any strong evidence to support the view whether web community learning or traditional learning is better. After checking detailed 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.

DISCUSSIONS AND CONCLUSIONS

Web community: A progressive idea for learning environment

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

Culture: On deficiency, excess and integration

Three generations of the user interface were developed during the last few years. It revealed that there was 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. It was found to be a long way to trace this back.

Cultivating use: A developmental attempt

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

REFERENCES

Lave, J. & E. Wenger (1991); *Situated Learning: Legitimate Peripheral Participation*; London: Cambridge Univ. Press
Qiou, Guei-Fa; (1996); *Situated Learning Concept and Computer Assisted Learning*; Taipei: National Normal Univ. Press.
Wu, Tung-Xiung; (2002) Series Research on Developing a Learning Web Community; in Passey, Don & Mike Kendall (eds.) *TeIE-LEARNING: The Challenge for the Third Millennium*, Montréal, Québec, Canada: IFIP 17th World Computer Congress &emdash