The Effects of Blog Cooperative Learning on Industry-oriented competency: A Case Study of the Global Logistics Management Curriculum

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Abstract

The research aimed at exploring the influence of cooperative learning combined with Global Logistics Management curriculum through "Blog" on enhancing technological students' industry-oriented competency. In addition, how student's self-feeling about generic skills/knowledge (competence), professional competence and workforce competence through the use of Blogs was also investigated. The research adopted a quasi-experiment of unequal controlling group design. The researchers selected two classes of senior students in a technological university in Taiwan as subjects. One class was assigned as the control group, and the other was experimental group. Twenty two students were assigned to the experimental group with blog-cooperative learning treatment that took two periods per week during nine weeks, while twenty eight students were in the control group with traditional teaching activities.

The researcher adapted the Scale of Graduate's Industrial Oriented Competence (SGIOC) to collect experimental data on business and management majored university students. Data collected were subsequently analyzed by the independent t-test, and paired samples t-test. The results indicated that the experimental group scored significantly higher than the control group on the total score of items: using computers, communication, language skills, problem-analysis and problem-solving, production and operation management, customer relationship management, E-commerce applications, team work, self-learning, leadership, and work ethics. The results can provide instrumental guidelines to improve the future technological education.

Keywords: Blog, Cooperative Learning, Global Logistics Management, Industry-oriented competency

1. Introduction

According to Johnson and Johnson [9], cooperative learning is the instructional use of small groups through which students can work together to maximize their own and each other's learning. In fact, real learning requires combining different elements of meaningful learning, which applies constructivism and technology to help students construct knowledge, think and learn [11]. Moreover, the integrations of information technologies into instructions were also confirmed to significantly contributed learners' performance from some research literature. For instance, the prior studies done by Yang and Huang [19], Chen [3], and Kidwell et al. [12] provided the similar conclusion. Hence, technology is merely a tool to enable students to construct knowledge.

Hence, this research was proposed to examine the influence of cooperative learning combining with industry-oriented curriculum through the use of "Blog" on technological students' the industry-oriented competency [20], and how students feel about generic competence, professional competence and workforce competence through Blogs was also investigated after the teaching activities. To effectively achieve the objectives of this study, the researchers proposed the main research questions regarding the impact of integrating blog-cooperative learning into Global Logistics Management Curriculum strategy instruction on university students' industry-oriented competencies as follows:

1. Is there any significant difference between the control and the experimental groups on students' industry-oriented competency?

2. Is blog-cooperative learning effective and successful for improving university students' industry-oriented competencies?

2. Literature review

2.1 Cooperative learning

Cooperative learning is a pedagogical practice that has attracted much attention over the last three decades because of a large body of research that indicates students gain both academically and socially when they have opportunities to interact with others to accomplish shared goals [6]. The Learning Together model is a cooperative learning strategy developed by Johnson and Johnson [9] to improve students' achievement that since 1897, over 550 experimental studies have been conducted on cooperative learning in different disciplines, and the results show the effect of cooperative learning promote more positive attitudes toward the task as well as cooperation tends to promote higher achievement in comparison to individualistic and competitive teaching instruction for all types of students [10]. Earl [4] state that cooperative learning most often involves small groups of students who contribute to

each other's learning which Student interactions lead to opportunities for improving communication skills, and more importantly, to collective problem-solving.

2.2 Blog in learning

A blog is usually viewed as a website that collects personal published information which learners can document their learning experiences or knowledge and share them [8]. The growth in the popularity of blogs as educational tools may be accounted for by a compelling set of arguments offered to persuade teachers of the benefits for student bloggers [7]. Wang et al. [17] pointed out that many educators have claimed that if students are continuously searching for information, they will naturally make sense of what they find. For example, Weblog [2] and Knowledge Forum [15], also focus on helping learners gain more knowledge and nurture problem-solving skills. Especially, Weblog (usually shortened to blog) have become very popular, and experts and academics have adopted them to publish their articles and to interact with their readers. Thus, blogs can be viewed both as an extension of the learning setting and as a new phase of teaching and learning in cyberspace.

2.3 Blog in cooperative learning

The blog combined with cooperative learning that allow integration in hands-on learning in education with the aim of opening the channels of learning to more modern and dynamic environments [13]. Research from the Athens University of Economics and Business (AUEB) that Knowledge Management program combined the blog's strengths as a tool for disseminating information and as an environment for collaborative working that significant increase in learning achievement [1]. Two of the popular practical uses of blogs made by Library and Information Science (LIS) practitioners which is reflected in instances of LIS educators' introduction of blog software into the classroom [7]. So and Brush [16] also found that collaboration was a factor in the study of perceived learning through blogging in a blended health education course, which students had high levels reported.

2.4 Industrial oriented competences

The concept of "competence" was first proposed by David McClelland [14], the psychologist of Harvard University. Competence is the external behavioral performance upon knowledge, skills and attitudes. Competence can be divided into generic competence and professional competence [18]. European Training Foundation (ETF) suggests that competence criterion is the interface between technological and vocational education and job market. However, in order to respond to international economic situations and change of domestic industrial structure, since 2008, the government, industry, academia, R&D industry of Taiwan have focused on "industrial-oriented competences" development. In order to explore the required industry oriented competences for business and management majored

university students, Yeh et al. [20] defined industry oriented core competences by using modified Delphi technique. Three competence categories, generic competence, professional competence, and workforce competence are identified which include a total of 16 core competences. These core competences can help university to prepare the appropriate curriculum and guide business majored students to learn the industry required skills.

3. Methods

3.1 Design and sample

An experimental, observer-blinded, pretest-posttest design was applied for this study. The whole research has been conducted for nine weeks from September to November in 2010. This quasi-experimental design aimed at exploring whether blog-cooperative learning would help Taiwanese university students learn Global Logistics Management Curriculum more effectively. Two classes of 50 senior class Business and Management majored students of Meiho University in Taiwan. They were divided randomly into two groups, a control group ($n=28$) who were taught their global logistics management curriculum by traditional learning method and an experimental group ($n=22$), who were taught the same materials with the use of blog-cooperative learning method. According to students' gender, the students in the each group were matched and then were randomly assigned to the two groups. For this purpose, each student in the population is assigned a number. A set of numbers is then randomly selected with units assigned those numbers being included in the sample.

3.2 Instrument

The questionnaire survey of this study adapted the scale of graduate's industrial oriented competence (SGIOC) of business department in technological and vocational institutes from Yeh et al. [20], including three categories of competence (sub-scales) and 16 core skills/knowledge (competencies) as shown in Table 1.

Table 1. Structure of the Industry-oriented Competency

Competence categories	Core competencies	
1. Generic competence	1.1. Using computers 1.2. Communication	1.3. Language skills 1.4. Problem-analysis and problem-solving
2. Professional competence	2.1. Production and operation management 2.2. Marketing management 2.3. Customer relationship management 2.4. Human resources management	2.5. Financial management 2.6. Accounting and statistical analysis 2.7. E-commerce applications
3. Workforce competence	3.1. Team work 3.2. Self-learning 3.3. Self-discipline	3.4. Leadership 3.5. Work ethics

This questionnaire was assessed on a 5-point Likert-type scale: completely possess, possess, neutral, non-possess incomplete possess. The remainder of the items recorded demographic data (i.e., gender). The reliability of the questionnaire was acceptable (Cronbach's alpha 0.98) as well as the sub-scales. The sub-scale Cronbach's alphas were 0.96 for generic competence sub-scale, 0.97 for professional competence sub-scale, and 0.97 for workforce competence sub-scale. Furthermore, interview of students and students' feedback were also used to observe students' change in their industry-oriented competencies. While interviewing with student that was observed by a teacher, three times in different days in the classroom, and the results were recorded. In order to enhance credibility of data, each student behavior on 3 different days were evaluated in all the students of experimental group. Data were analyzed using SPSS at an alpha level of 0.05. Descriptive analysis of the independent t-test, and paired samples t-test were also conducted.

4. Results and discussion

In order to measure the participants' industry-oriented competency proficiency in the pre-instructional phase, a SGIOC pre-test was taken by the participants in both groups before the study began. The results of the pre-test were later analyzed by the statistical independent samples t-test and they are presented in Table 2.

Table 2. Independent Samples t-test on the Industry-oriented Competencies Proficiency Pre-test Result

Group	N	M	SD	Sig. (two-tailed)	t-value
Experimental	22	59.77	9.25	.586	.549
Control	28	58.43	7.69		

Note. $p>.05$

As shown in Table 2, the mean scores of the English proficiency test were 59.77 for the experimental group and 58.43 for the control group. Results of the independent t-test indicated that there were no significant differences between the two groups ($t=.549$, $p=.586$, $p>.05$.). The results indicated that industry-oriented competencies proficiency in both groups was confirmed to be similar before the study began.

In order to examine the effects of integrating blog-cooperative teaching into learning strategy instruction enhance university students' industry-oriented competencies, the performance of the two groups post-test was compared and analyzed via an independent t-test to see if there was a significant difference between the two groups, as shown in Table 3.

Table 3. Independent Samples t-test on the Industry-oriented Competencies
Proficiency Post-test Result

Group	N	M	SD	Sig. (two-tailed)	t-value
Experimental	22	67.91	8.26	.007	2.797**
Control	28	60.82	9.65		

Note. ** $p<.01$

According to Table 3, the results of the independent t-test showed there was a statistically significant difference between the control and the experimental group in the post-test scores at the .05 level ($t=2.797$, $p=.001$, $p<.01$). The mean score of the experimental group ($M=67.91$) was significantly higher than those of the control group ($M=60.82$). The result indicated that the students in the experimental group performed significantly better than those in the control group on the reading proficiency post-test. In other words, blog-cooperative learning may yield positive results in facilitating the participants' industry-oriented competencies proficiency.

In order to respond to the first research question, the participant's performances on the industry-oriented competency post-tests were examined and then analyzed via the independent t-test to see if there was any significant difference found between the control and the experimental group. The results can be seen in Table 4.

Table 4. Comparison of the Industry-oriented Competencies' Variables between the
Control and the Experimental Groups

Variable	Experimental (n=22)		Control (n=28)		Sig.	t-value
	M	SD	M	SD		
1.1. Using computers	4.41	.666	3.89	.875	0.022	2.37*
1.2. Communication	4.50	.598	4.07	.766	0.031	2.22*
1.3. Language skills	3.55	.596	3.18	.548	0.030	2.24*
1.4. Problem-analysis and problem-solving	4.36	.658	3.75	.701	0.003	3.18**
2.1. Production and operation management	4.27	.883	3.75	.701	0.029	2.27*
2.2. Marketing management	4.09	.684	3.79	.787	0.149	1.47
2.3. Customer relationship management	4.27	.631	3.75	.799	0.013	2.58*
2.4. Human resources management	4.09	.811	3.71	.810	0.110	1.63
2.5. Financial management	3.73	.767	3.71	.763	0.953	0.06
2.6. Accounting and statistical analysis	3.50	.673	3.21	.686	0.146	1.48
2.7. E-commerce applications	4.23	.922	3.54	.881	0.010	2.68*
3.1. Team work	4.86	.351	4.04	.793	0.000	4.55***
3.2. Self-learning	4.55	.671	3.89	.832	0.004	3.07*
3.3. Self-discipline	4.50	.673	4.18	.723	0.111	1.62
3.4. Leadership	4.55	.671	3.93	.716	0.003	3.13**
3.5. Work ethics	4.86	.351	4.43	.742	0.015	2.53*

Note. * $p<.05$　　** $p<.01$　　*** $p<.001$

According to Table 4, the data was collected and analyzed from the 16 variables post-tests. As shown in Table 4, the results, from variable 1.1 to variable 3.5, showed

significant differences between the two groups' industry-oriented competencies post-tests. The results revealed that the experimental group outperformed significantly the control group on the industry-oriented competencies post-tests. Therefore, the results indicated that the students in the experimental group learned the core competence efficiently after the Global Logistics Management Curriculum instruction combined with blog-cooperative learning.

5. Conclusions

This study investigated the effects of cooperative learning combining with Global Logistics Management Curriculum through "Blog" on technological students' industry-oriented competencies. After the teaching activities, how students' self-feeling about generic competence, professional competence and workforce competence through using Blogs were also investigated. Following are the major findings and results summarized according to the research questions of present study.

1. Researchers, in this study, attempt to examine the effectiveness of integrating blog-cooperative learning into Global Logistics Management Curriculum strategy instruction to improve university students' industry-oriented competencies. The SGIOC test was conducted before and after the experiment. The data gathered from each test instrument was statistically analyzed via independent t-test, and paired samples t-test to see if any significant difference occurred between the experimental and the control group. Concerning the core competencies, the research findings showed that the experimental group scored significantly higher than the control group on the total score of the using computers, communication, language skills, problem-analysis and problem-solving, production and operation management, customer relationship management, E-commerce applications, team work, self-learning, leadership, and work ethics.

2. In addition to comparing the difference between the two groups, the data were also analyzed through paired samples t-test in order to see if any significant progress had been made within the experimental group. Students in the experimental group performed significantly better than the students in the control group. This has indicated that the learners benefited from the blog-cooperative learning strategy and activities on their industry-oriented competencies. It demonstrates that research finding of Yang and Huang [19], Chen [3], and Kidwell et al. [12] that integrating information technology into instruction had significantly improved learners' performance. Based on these results, blog-cooperative learning strategy and activities are recommended to administrative organizations, universities and follow-up teachers as a technological education teaching model.

6. Acknowledgements

7. References

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