

Relationship between Learning Consciousness and Performance in Blended and Online Learning with and without CMC-based Learner-Centered Communication

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Abstract: This study compares four types of classes (Blended learning with and without learner-centered CMC, Online learning with and without learner-centered CMC). We then investigated the effect of each class based on two points; one is self consciousness of learning, the other is other learners' consciousness of learning consciousness and motivation. The result showed that the learning type such as blended learning has a significant effect on learner-centered CMC. The correlation, on the other hand, was not confirmed between perceived learning consciousness and performance. It can be said that preparation for online learning and scheduled events such as test are important for continuous learning.

1. Introduction

As information and communication technology advances, interest has grown in using computer networks for second language learning. Lately, communication technology such as computer-mediated communication (CMC) is often used not only in the homes, but also in educational settings such as in the classrooms. CMC allows teachers to offer Internet-based collaborative learning. On the other hand, one common important perspective in online learning is learner's consciousness of learning, that is, self-regulated learning. Self-regulated learning is learning strategy to control learning plan with the enhancement of motivation and learning skill (Zimmerman, 1998). Self-regulated learning has effect on learning performance directly (Pintrich et al, 1990). In online learning, learners have to keep self-pacing consciousness, because teachers do not instruct the learners. Therefore, one effective solution would be in the use of CMC; blended learning with CMC and face-to-face lectures would be practical and effective for online learning (Matsuda, 2004). Self-regulated learning will be one of the central factors in successive online learning (Kougo et al, 2004), considering the increasing number of online learning over the world. This study aims to identify the learning design for the promotion of self-regulated learning style. For that, this study investigates the learner's consciousness of learning with and without learner-centered CMC and the relationship between consciousness and performance.

2. Online Learning and Collected Data

In our university, online courses and blended courses combining face-to-face and online classes targeted at a e-learning professional are offered on trial this semester. The course would be conducted as a regular course next year. All online courses are offered through the Learning Management System "Cyber Campus System", which enables learners to access and undergo the courses wherever learners can use the Internet. In this study, we conducted the research in two courses; "Fundamentals of IT for Education" and "Instructional Design". Each course has two types; online and blended learning with face-to-face and online. Table 1 shows the overview of these courses.

Table.1 Overview of two courses

	Fundamentals of IT for Education		Instructional Design	
	Blended learning	Online learning	Blended learning	Online learning
Ratio of e-learning	46.1 %	100%	61.5%	100%
Number of students	49	76	35	85
Learner-centered CMC	No	No	Yes	Yes
Number of mentors	2	2	3	3

The aim of this study is to investigate the contribution of learning consciousness to performance. Data was collected in two ways. The first is through a questionnaire. All subjects were required to answer a questionnaire at end of semester. The questionnaire asked all subjects to rate the perceived learning consciousness through the courses. Three additional questions were also asked to the learners of the "Instruction design" course, which offers collaborative learning, for the purpose of investigating the effect of other learners' presence on learning type. All

questions were designed based on a 4 point scale (1: not at all – 4: very much). The questions asked to the subjects are listed in Table 2. The number of data collected from the questionnaire within each course is shown in Table 3. The second data collection method is test. In order to conduct an objective research, the test scores for both courses were used for analysis. Both test scores were standardized at the maximum of 100 points before analysis because of the difference of maximum score between the two courses.

Table.2 Questions about perceived learning consciousness

#	Questions	Note
1	Rate the perceived consciousness of learning objectives during learning	
2	Rate the perceived recognition of action along with syllabus	
3	Rate the motivation to accomplish learning objective	
4	Rate the perceived consciousness of learning objectives with watching other learners' opinions and behaviors	Only for instructional design class
5	Rate the other learners' consciousness of learning objectives	
6	Rate the other learners' motivation to accomplish learning objectives	

Table.3 The numbers of collected data from questionnaire (collect rate)

	Fundamentals of IT for Education		Instructional Design	
	Blended learning	Online learning	Blended learning	Online learning
Numbers of collected data	21 (42.9 %)	9 (11.8 %)	31 (88.9 %)	12 (14.1 %)

3. Result

Questions 1 to 3 collected by the questionnaire were analyzed using two-way analysis of variance (ANOVA). T-test was conducted for questions 4 to 6, in order to clarify the effect of learning type. After these analyses, the correlation variances were calculated for the clarification of the relationship between perceived learning consciousness and test score with and without learner-centered CMC. ANOVA on questions 1 to 3 revealed a non-significant effect of both learning type and CMC. However, the T-test on questions 4 to 6, concerned with the difference between online learning and blended learning revealed the significant effect on each item. Table 4 shows the mean score and effect of learning type.

Table 4 Mean scores and effects of questions on perceived consciousness of learning

#	Blended learning	Online learning	Effect
4	2.84	1.75	***
5	2.81	2.08	**
6	2.84	2.25	*

Correlation analysis shows a positive tendency in the correlation between question 3 and test score ($r = 0.345$, $p < 0.1$) and negative tendency in the correlation between question 6 and test score ($r = -0.325$, $p < 0.1$) in blended learning with CMC. The average scores in each course are shown in Table 5.

Table.5 Average scores in each course

	Fundamentals of IT for Education		Instructional Design	
	Blended learning	Online learning	Blended learning	Online learning
Average score	87.0	88.1	88.9	91.3

Some students commented on each type of course. Almost all who took the online course commented on motivation. Learners who took blended learning, in particular, blended learning with CMC, tended to have a positive opinion. There are no opinion about the advantages and disadvantages of CMC.

For online learning:

Comment 1: Keeping motivation was very tough for me, because I had many assignments from the other classes. Therefore, I had to do the assignments during the night. And, also sometimes I had to continue doing in school.

Comment 2: Detailed instructions are probably needed before the start of online learning.

Comment 3: Information sent at every event from the mentors helped me to make a learning plan..

Comment 4: The tests that were available in every unit made me aware of the importance of planning my learning. I was motivated to remember keywords to get a good score.

For blended learning:

Comment 1: The mentors encouraged me to keep learning, when I was late to complete some assignments.

Comment 2: The mentors helped me to accomplish assignments when I faced some trouble such as when I come upon unfamiliar terminologies during learning.

Comment 3: I needed more information on the usage of the learning management system. One-time face-to-face instruction was not enough to help me understand it.

Comment 4: I was embarrassed to take part in discussions before being familiar with other learners.

4. Discussion

In this study, we found the effect of learning type in the course which offers learner-centered CMC. With regards to questions for learners who received collaborative units, learners seemed to be conscious of other learners' procedures, opinions and actions in collaborative learning. This suggests that being conscious of other learners helped the learner to be aware of the points that he/she lacks and keep learning, as shown by the results of the questionnaire and free comments. Mentors also influenced learner's motivation and learning. Mentors in these courses made an important role in assisting learner's learning. For instance, they notified the learners of important information and answered the questions from learners as soon as possible. These helped learners to make a plan for learning in self-paced situation. With respect to correlation between perceived consciousness and performance, both positive and negative correlations were confirmed in only blended learning with CMC. This suggests that learners who are conscious of learning objective succeeded in accomplishing the course. Negative correlation between negative recognition of other learners' motivation and performance seemed to promote the consciousness of self-learning, as a result, allowing them to get high remarks.

5. Conclusion and future work

This study aimed to investigate the relationship between perceived learning consciousness in blended learning and online learning with and without collaborative learning using CMC and performance. It was suggested that not only consciousness of learning objective but also recognition of other learners' behavior help learners to keep learning through blended learning. In addition, it is important to note that continuous learning is dependent on the proper distribution of important academic information such as assignment deadline and date of face-to-face class. Future work towards the realization of effective self-regulated learning in both online and blended learning is as follows:

1) Focusing on assistance in collaborative learning

We cannot deny the effect of postings in CMC and behavior of other learners on perceived consciousness and recognition of other learners. We need to analyze and consider the relationship between postings and perceived consciousness of learning objectives, and performance.

2) Implementation of assistance functions for successive learning

This study reveals two factors that seem to be important for successive learning; perceived consciousness of other learners and regular events. Thus, the implementation of some functions which promote the factors will be needed in the future. One of the effective functions is visualization for assistance in order to understand other learners' procedures and regular event.

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