

A Comparative Study on Japanese and Korean Students' Perceived Usefulness of Online Cooperative Learning

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Abstract—Development and diffusion of computer-mediated communication technology has enabled cooperative learning in virtual settings. Online cooperative learning facilitates learners in a distance collaborate and achieve a common goal. In the online cooperative learning process, SNSs or groupware are used to promote productive communication. In such a learning environment, it is expected that learners might consider not only the learning system or technology but also the learning process useful. However, previous studies have only focused on perceived usefulness of a learning system or technology of OLCL and few studies have focused on the usefulness of the learning process of OLCL. Therefore this study purposed to identify Japanese and Korean students' perceived usefulness of OLCL. A questionnaire survey targeting 56 university students (29 Japanese and 27 Koreans) who completed OLCL activities was conducted. As a result, 12 usefulness statements were identified as Japanese students' perceived usefulness of OLCL with four sub-scales: online communication, mutual cooperation, reflection of one's culture, and encounter with Korea. On the other hand, 11 statements were identified as Korean students' perceived usefulness of OLCL, including four sub-scales: Japanese expressions, enhancement of writing ability, knowledge of Japanese culture, and encounter with Japanese.

Index Terms—perceived usefulness, online cooperative learning, technology acceptance model, structure analysis

I. INTRODUCTION

Development of the knowledge society has brought a substantial change in teaching and learning. In order to deal with the structural change of the society, school

systems are required to recognize the significance of learning objectives such as social competence, critical thinking, knowledge sharing, and cooperation techniques [1], and to implement learning methods such as cooperative learning that require active interaction among the learners.

Cooperative learning is defined by Panitz [2] as “a set of processes which help people interact together in order to accomplish a specific goal or develop an end product which is usually content specific.” According to Johnson and Johnson [3], [4], effective cooperative learning requires 1) positive interdependence, 2) individual accountability, 3) promotive interaction, 4) social skills, and 5) group processing. When these elements are well structured into the learning process, cooperative learning leads to increase not only learners' academic performance, but also their participation, responsibility [5], basic needs, and intrinsic motivation [6].

A. Cooperative Learning in Virtual Pedagogical Settings

With the development and diffusion of computer-mediated communication technology, cooperative learning is no longer limited to traditional classroom settings [7] but is now implemented in virtual pedagogical settings.

Online cooperative learning (hereinafter abbreviated as OLCL) enables learners who are far away from each other collaborate and achieve a common goal. Bliss and Lawrence [8], [9] reported that team work through computer-mediated communication resulted in significant increase of students' participation, frequency of interaction, and the quality of conversation. However, few works have focused on learners' educational, psychological, and personal aspects that affect their behavior, attitude, and achievements in OLCL.

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B. Perceived Usefulness of a New Technology

With the purpose to investigate users' acceptance behavior on new technology such as computer-mediated communication technology, many models have been developed by researchers. Among them, Technology Acceptance Model (hereinafter abbreviated as TAM) developed by Davis [10], [11] is one of the most extensively used research models to predict acceptance and use of new technology.

TAM theorizes that users' belief about the usefulness of a new technology affects intention to use a new system, and is one of the strongest determinants of actual system usage. Perceived usefulness is defined as "the degree to which an individual believes that using a particular system would enhance his or her productivity," while perceived ease of use is defined as "the degree an individual believes that using a particular system would be free of effort [10], [11]." Davis [10] reported that users' belief about the usefulness of a new technology affects attitudes towards use and intention to use a new system, and is one of the strongest determinants of actual system usage. Saga and Zmud [12] advanced Davis's research and found that a user may adopt a new technology if he or she perceives it is convenient, useful, and socially desirable even though they do not enjoy using it.

Davis [10] developed and validated measurement scales for perceived usefulness. The scale consists of 6 items that measure users' belief on new technology on a ten-point Likert scale. In the study, Davis [10] identified three main clusters of perceived usefulness: job effectiveness, productivity and time savings, and importance of the system to ones' job.

Recent studies on e-learning have reported learners' or users' perceived usefulness and perceived ease of use on online learning systems or environments. Masrom [13], Lee *et al.* [14], and Tagoe [15] developed scales based on the TAM that measure learners' beliefs on e-learning, but they did not adopt all of the items of the TAM. Abdel-Wahab [16] and Eke [17] adopted four items to measure learners' perceived usefulness and introduced a new subscale: "learners' satisfaction" that was not reported in the TAM. These studies suggest that learners' belief in e-learning consists not only of usefulness the system but also usefulness of the learning process.

Different from computer assisted instruction and Web-based training, OLCL requires learners to collaborative in order to accomplish a common goal. In such a learning environment, it is expected that learners might consider not only the learning system but also the learning process useful. Given the situation, it is important to identify what learners believe useful of OLCL. Therefore this study purposed to identify Japanese and Korean students' perceived usefulness of OLCL.

II. PURPOSE

The purpose of this study is to identify Japanese and Korean university students' perceived usefulness of OLCL. The research questions to be addressed in this study are: 1) What do Japanese and Korean university

students find useful about OLCL? 2) What is the structure of participants' perceived usefulness of OLCL? 3) What are the differences in Japanese and Korean students' perceived usefulness of OLCL?

III. METHOD

A questionnaire survey was conducted from December 3rd, 2013 to January 16th, 2014, with the purpose of identifying Japanese and Korean learners' perceived usefulness of OLCL.

A. Participants

Participants were 29 Japanese first-year university students who participated in Korean language classes and 27 Korean university students taking Japanese classes. Participants experienced project based cooperative learning via the Internet. During the Internet-based cooperative learning session, participants worked in a group of five or six students: two or three Japanese students and two or three Korean students.

B. Questionnaire

A self-report questionnaire sheet, which was a written form of free-response style, was used to identify learners' perceived usefulness of cooperative learning via the Internet. Participants were asked what they found useful of learning cooperatively via the Internet.

C. Procedure

The participants first got lectured about the learning objectives and tasks of the Internet-based cooperative learning activity they were to experience. Then, participants were demonstrated and taught how to operate the SNS they were to use during the cooperative learning session.

During the cooperative learning session, firstly, the Japanese students and Korean students discussed and decided what topic they want to talk about and study. Topics such as "Food in Japan and Korea," "College life in Japan and Korea," "Working part-time in Japan and in Korea," and "Japanese and Korean people's views of marriage" were adopted. Secondly, the participants explained the actual conditions in their countries. Then, the participants conducted a survey on each topic and exchanged their findings. Lastly, they exchanged impressions and ideas, drew conclusions about the topic, and wrote research reports. While the participants learned cooperatively via the Internet, teachers facilitated creative conversation and provided students technical support. All of the participants' comments and teachers' comments were stored online.

After the cooperative learning session, the participants answered to a questionnaire on their perceived usefulness of OLCL.

IV. RESULTS

Among the 56 participants, 54 participants (27 Japanese participants and 27 Korean participants) completed the questionnaire survey. This means that the response rate was 96.43 percent. Hereinafter, the results of the 54 answers will be introduced.

A. Participants' Profile

Table I shows the breakdown of participants by gender, their experience of communicating with Japanese and Koreans, and experience of using Facebook.

TABLE I. PARTICIPANTS' PROFILE

Profile of participants		Japanese		Korean	
		Frequency	%	Frequency	%
Gender	Male	6	22.22%	8	29.63%
	Female	21	77.78%	19	70.37%
	Total	27	100.00%	27	100.00%
Experience of communicating with a Japanese/Korean	Yes	6	22.22%	10	37.04%
	No	21	77.78%	17	62.96%
	Total	27	100.00%	27	100.00%
Experience of using Facebook	Yes	16	59.26%	19	70.37%
	No	11	40.74%	8	29.63%
	Total	27	100.00%	27	100.00%

The reason for the large proportion of the women is that all of the participants were language learners who major in foreign studies/language. Most of the participants mentioned that they have never communicated with Japanese or a Korean person before. More than a half of the participants replied that they have used Facebook before.

B. Japanese Students' Perceived Usefulness of OLCL

TABLE II. JAPANESE STUDENTS' PERCEIVED USEFULNESS OF OLCL

Items	Frequency	%
OLCL is useful because...		
1. I enjoyed communicating with Korean students.	14	48.28%
2. I could be acquainted with Korean students.	13	44.83%
3. I felt familiar to Korean people.	13	44.83%
4. I learned about Korean culture.	12	41.38%
5. I learned about Korean students' life.	12	41.38%
6. we could help each other.	9	31.03%
7. we cared about each other's' feelings.	9	31.03%
8. I tried to use appropriate Japanese.	9	31.03%
9. I could learn how to communicate with others online.	7	24.14%
10. I could develop activeness.	7	24.14%
11. I looked back on Japanese culture.	7	24.14%
12. I learned how to use SNSs.	5	17.24%

Affinity diagramming (KJ method) was used to group Japanese participants' perceived usefulness statements with similar contents or characteristics together. In order to achieve validity and reliability of the classification and grouping of the anxiety, the procedure was helped by a researcher majoring in language education and a researcher majoring in educational psychology. As a result, 12 perceived usefulness statements were determined for the Japanese students' perceived usefulness of OLCL (see Table II).

Results of the survey reveal that more than one third of the Japanese participants found that OLCL is useful because they can enjoy communicating with Korean students, they could be acquainted with Korean students, they felt familiar to Korean students, they learned about Korean culture, and they learned about Korean students' life.

C. Classification of Japanese Students' Perceived Usefulness of OLCL

Japanese participants' responses were classified using Hayashi's quantification method type III. Table III shows the normalized category weights given to participants' perceived usefulness in OLCL. According to the tendency of the decrease of the eigenvalue (first axis: 0.7806, second axis: 0.2800, third axis: 0.2530) and the cumulative proportion (first axis: 46.53 percent, second axis: 63.23 percent, third axis: 78.31 percent), two axes were determined and interpreted.

TABLE III. NORMALIZED CATEGORY WEIGHTS TO JAPANESE STUDENTS' PERCEIVED USEFULNESS OF OLCL

Items	Axis 1	Axis 2
OLCL is useful because...		
1. I enjoyed communicating with Korean students.	-0.6949	-0.1588
2. I could be acquainted with Korean students.	-0.6685	-0.2330
3. I felt familiar to Korean people.	-0.7827	-0.2127
4. I learned about Korean culture.	-0.9584	0.1782
5. I learned about Korean students' life.	-0.9584	0.1782
6. we could help each other.	1.3139	-1.1467
7. we cared about each other's' feelings.	1.2178	-1.3057
8. I tried to use appropriate Japanese.	0.8861	-1.5837
9. I could learn how to communicate with others online.	1.6850	2.0233
10. I could develop activeness.	1.1763	1.3500
11. I looked back on Japanese culture.	-0.6589	1.1432
12. I learned how to use SNSs.	1.0837	1.6900

Results of the statistical analysis suggest that Japanese university students' perceived usefulness of OLCL can be classified into four clusters.

The first cluster consists of three items: item # 1-3 that had high category scores on the first and second correlation axis. As all of the three items are related with participants' perceived usefulness of communicating with others online, the first cluster was given the name "online communication."

The second cluster includes three items: # 4-6 that had high category scores on the first axis and highly negative scores on the second axis. Considering the three items related with helping each other online, the second cluster was named "mutual cooperation."

The third cluster consists of one item: # 7 that had highly negative scores on the first axis and high score on the second axis. The item explains participants' perceived usefulness of looking back on their country's culture, and therefore, the third cluster was named "reflection on one's culture."

The fourth cluster consists of five items: # 8-12 that had highly negative scores on the first correlation axis and low scores on the second axis. As the five items are related with encountering Korean people and Korean culture, the fourth cluster was given the label "encounter with Korea."

D. Korean Students' Perceived Usefulness of OLCL

The KJ method was used to group Korean participants' perceived usefulness statements with similar contents or characteristics together. As a result, 11 statements were identified as Korean students' perceived usefulness of OLCL (see Table IV).

TABLE IV. KOREAN STUDENTS' PERCEIVED USEFULNESS OF OLCL

Items	Frequency	%
OLCL is useful because...		
1.I learned about Japanese people.	13	48.15%
2.I developed my Japanese writing skills.	12	44.44%
3.I could communicate with Japanese students.	12	44.44%
4.I could be acquainted with Japanese students.	12	44.44%
5.I learned about Japanese culture.	11	40.74%
6.I learned cultural differences.	11	40.74%
7.I learned everyday Japanese expressions.	10	37.04%
8.I learned proper Japanese.	10	37.04%
9.I learned how to use SNSs.	10	37.04%
10.I had a greater opportunity to use Japanese.	10	37.04%
11.I developed my Japanese typing skills.	7	25.93%

Results of the survey reveal that more than one third of the participants found OLCL useful because they learned about foreign people, they could develop their writing skills in Japanese, they could communicate with Japanese students, they could be acquainted with Japanese students,

they learned about Japanese culture, they learned cultural differences, they learned everyday expressions in Japanese, they learned proper Japanese, they learned how to use SNSs, and they had a greater opportunity to use Japanese.

E. Classification of Korean Students' Perceived Usefulness of OLCL

Responses were classified by quantification method type III. Table V shows the normalized category weights given to Korean participants' perceived usefulness of OLCL. Referring to the tendency of the decrease of the eigenvalue (first axis: 0.7648, second axis: 0.2205, third axis: 0.1489) and the cumulative proportion (first axis: 54.59 percent, second axis: 70.33 percent, third axis: 80.96 percent), two axes were determined and interpreted.

TABLE V. NORMALIZED CATEGORY WEIGHTS TO KOREAN STUDENTS' PERCEIVED USEFULNESS OF OLCL

Category	Axis 1	Axis 2
OLCL is useful because...		
1. I learned about Japanese people.	-1.0708	0.6352
2. I developed my Japanese writing skills.	0.7593	-0.6804
3. I could communicate with Japanese students.	-0.7926	0.1234
4. I could be acquainted with Japanese students.	-1.0044	0.3681
5. I learned about Japanese culture.	-0.9965	-0.1562
6. I learned cultural differences.	-0.9965	-0.1562
7. I learned everyday Japanese expressions.	1.2822	1.3552
8. I learned proper Japanese.	1.2822	1.3552
9. I learned how to use SNSs.	0.4262	-1.9992
10. I had a greater opportunity to use Japanese.	1.1435	0.3974
11. I developed my Japanese typing skills.	0.9935	-1.9485

Results of the analysis suggest that Korean university students' perceived usefulness of OLCL can be categorized into four clusters.

The first cluster consists of three items: item # 1-3 that had high category scores on both of the axes. The three items explain participants' perceived usefulness of learning Japanese expressions so the first cluster was named "Japanese expressions."

The second cluster includes three items: # 4-6 that had high scores on the first axis and highly negative scores on the second axis. All of the items are related with perceived usefulness of developing their writing ability. Therefore, the second cluster was named "enhancement of writing ability."

The third cluster consists of three items: # 7-9 that had high negative scores on the first axis and low scores on the second axis. Considering the three items that are

related with encountering and studying Japanese culture, the third cluster was named “knowledge of Japanese culture.”

The fourth cluster includes two items: # 10 and 11 that had highly negative scores on the first axis and relatively high scores on the second axis. As both of the items refer to encountering Japanese people, the fourth cluster was named “encounter with Japanese.”

V. DISCUSSIONS

The purpose of the study was to identify Japanese and Korean university students’ perceived usefulness of OLCL.

Regarding the first research question “What do Japanese and Korean university students find useful about OLCL?,” results of the questionnaire survey show that Japanese university students who study Korean language found OLCL useful because they can enjoy communicating with Korean students, they could be acquainted with Korean students, they felt familiar to Korean students, they learned about Korean culture, and they learned about Korean students’ life. On the other hand, Korean university students who study Japanese language found OLCL useful because they could communicate with Japanese students, they could be acquainted with Japanese students, they learned about Japanese culture, they learned cultural differences, they learned everyday expressions in Japanese, they learned proper Japanese, they learned how to use SNSs, and they had a greater opportunity to use Japanese.

With regard to the second research question “2) What is the structure of participants’ perceived usefulness of OLCL?,” statistical analysis using Hayashi’s quantification method type III revealed that Japanese participants’ perceived usefulness of OLCL can be described by two axes, and can be classified into four groups, namely, “online communication,” “mutual cooperation,” “reflection on one’s culture,” and “encounter with Korea.” On the one hand, statistical analysis revealed that Korea participants’ perceived usefulness of OLCL can be described by two axes and can be classified into four groups: “Japanese expressions,” “enhancement of writing ability,” “knowledge of Japanese culture,” and “encounter with Japanese.”

Referring to the third research question “What are the differences in Japanese and Korean students’ perceived usefulness of OLCL?,” results show that Japanese learners and Korean learners both found that OLCL is useful because they could learn about another countries culture, and they could be acquainted with a university students of another country. Only Japanese students mentioned that they found OLCL useful because they could cooperate with others during the learning process, and only Korean students said that they found OLCL useful because they could develop their communication skills of their target language.

VI. CONCLUSION

Results of the present study suggest that learners’ perceived usefulness of OLCL mainly consists of usefulness of the learning process, not of technology based usefulness. As OLCL is not a synonym of computer assisted instruction or Web-based training, it is significant to focus on the whole learning process to ensure the quality of OLCL.

Since the participants of the present study are Japanese and Korean university students who major in foreign studies and foreign language, using other samples from elsewhere is expected for future generalization of the items.

Given the findings of this study, it is necessary to develop a perceived usefulness scale on OLCL and examine the validity and reliability of the scale. By doing so, it would be possible to identify what kind of learners find what kind of aspects of OLCL useful, leading to what kind of learning attitude, behavior and achievements. Moreover, future studies should investigate the relationship of learners’ perceived usefulness, perceived ease of use, and acceptance of OLCL according to the TAM.

The findings of this study should contribute to suggest instructors how to promote learners’ perceived usefulness on OLCL. OLCL requires learners to study autonomously and collaboratively outside of the class. In such a learning environment, learners might need tutoring or mentoring that helps their individual learning, and facilitation or guidance that enhances cooperative communication and collaborative online. It is anticipated to identify the roles of teachers in OLCL with the purpose of helping learners learn effectively and efficiently.

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