Collaborating and Communicating Online:

A Cross-Bordered Intercultural Project between Taiwan and the U.S.

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Abstract

This study explored the collaborative process of an online cross-cultural communication project between Taiwan and the U.S. The behaviors of the cross-cultural teams were analyzed and compared. The results indicated that the U.S. participants enjoyed interacting with their group members more, had developed a better sense of community, and were more comfortable with online communication. However, more of the U.S. participants lurked online. It was recommended that a modified web-based cultural and language exchange project be coordinated to accommodate the Taiwanese participants' desire in learning English. Besides, cross-bordered teams should be informed of the proper online collaborative and communication skills.

Key words: online collaboration, cross-cultural communication, cross-bordered collaboration

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Introduction

Collaborative Learning and Online Collaboration

Learning is a social phenomenon where students acquire competence through interactions (Bonk & Wisher, 2000) that are culturally grounded (Vygotsky, 1978). Research provided evidence that collaborative learning potentially fostered more interactions and social support when compared to traditional learning (Kim & Bonk, 2002). The benefits of collaborative learning have been highlighted by numerous researchers. Besides the development of critical thinking and problem-solving skills (Gokhale, 1995), collaborative projects allow students to become intrinsic learners and genuine communicators (Cohen, 1995). Clifford (1999) pointed out that team work had allowed college students to become autonomous learners while Van Oers and Hännikäinen (2001) emphasized the maintenance of "togetherness" which transformed learning from individual contributions to shared activities. In advocating the rationale for developing more communicative ways of learning in higher education, Dunn and Rawlins (2000) proposed the organization of groups to facilitate the crucial social, shared and cooperative contexts in learning.

As Cassell and Tversky (2005) indicated, it is no longer valid to limit the concept of community as physical groups of people. Many societies are multicultural, and many people and organizations collaborate across geographic and cultural boundaries (Iivonen, Sonnenwald, Parma, & Poole-Kober, 1998). Because of globalization, the need to collaborate on projects across borders and develop cross-cultural awareness has become increasingly important and desirable (Massetti & Lobert, 1996). The role of technology on transcending communication across nations and cultures is noticeable. New technologies have enabled communication across time and space (Iivonen et al., 1998). Because of this, the benefits of computer-mediated collaborative learning are supported by numerous researchers. For example, it was possible for the people who are hesitant to express their opinions in face-to-face settings to be more willing to voice their opinions online (Harasim, 1993; Citera, 1998). Also, more in-depth analysis can occur in online collaborative learning environments (Warschauer, 1997).

Cross-cultural Collaboration

Learning about intercultural communication through cross-cultural collaboration allows learners to exchange ideas with distant partners (Cifuentes & Shih, 2001). However, international collaboration is not an easy task due to its remote nature, the linguistic and cross-cultural challenges (Kim & Bonk, 2002). Effective cross-cultural collaborations require collaborators to share meanings based on the understanding of cultural differences and information (Iivonen et al., 1998). Cultural influences may affect styles in communication, perceptions and learning. For example, students of Asian heritage preferred working cooperatively in composing email messages when completing assignments (Freedman and Liu, 1996). In studying student conceptions of learning and the use of self-regulated learning strategies, Purdie, Hattie and Douglas (1996) discovered that Japanese students viewed learning from a broader perspective when compared to their Australian counterparts. In a study to examine the knowledge transfer and collaboration between U.S. and Thai students, Sarker (2005) observed that U.S. students were more expressive than the students in Thailand. Through a case study, Kim and Bonk (2002) found differences in reflective behaviors between the students in Finland and the U.S. Lee and Choi (2005) also concluded that cultural differences resulted in online consumers' various responses toward web advertising. In facilitating collaboration among international teams, Agerup and Büsser (2004) suggested focusing on the cultural perspectives of teambuilding.

Other critical impacts on cross-cultural collaborations include language skills (Kim & Bonk, 2002), communication competence (Sarker, 2005), dimensions of cultures such as individualism versus collectivism (Hui, Triandis, & Yee, 1991) and high versus low-context cultures described by Hofstede (1991) and Hall (1976).

Online Cross-cultural Communication

While some researchers stressed the importance of understanding cultural cognitive style in improving online communication (Faiola & Matei, 2005), others associated online users' preferences with the success of virtual cross-cultural learning (Honold, 2000; Trompenaars, 1997). From the experience in implementing an intercultural learning experience in educational technology, Davis et al. (2004) recognized several challenges and advised that intercultural experiences were difficult to plan. One of the challenges in sustaining a rewarding networked cross-cultural experience was to consider learning at both the individual and community levels. In a case analysis of an internet based collaboration between Poland and the U.S., Massetti and Lobert (1996) discovered that cross-cultural communication in virtual environments were more time consuming and it could be frustrating to the collaborators. They also discovered the challenges in online collaboration such as the reliability and accessibility of the information technological tools.

In regard to computer mediated communication, Walther (1996) advocated using technological communication tools to increase the adherence to group norms. However, House and Segelman (2000) highlighted the lack of personal contacts as one of the disadvantages of online collaboration. On the contrary, evidence was found for deeper critical thinking skills (Kim & Bonk, 2002) and less constrained interactions in the computer conferencing environment (Chester & Gwynne, 1998). In summarizing the results of an online international collaboration, Sorensen and Takle (1999) reported that structuring the online learning process was crucial. They also advised that both the facilitators and participants be well prepared in that the participants expressed a desire to collaborate and facilitators demonstrated balanced participation and awareness of open communication.

As virtual interactive environments can support and sustain online communities, the issues of disengagement can occur for some participants (Haythornthwaite, Kazmer, Robins, & Shoemaker, 2000). Faiola and Matei (2005) proved that there were links between online learning and users' preferences. For example, Sorensen and Takle (1999) found that Danish learners preferred a more structured online collaborative environment than the U.S. learners. Cassel and Tversky (2005) also identified various online behaviors among the youth who participated in an international online forum and concluded that online communities were perceived differently among international users.

Teaching Intercultural Communication

Intercultural communication allows the exchange of views among distant learners around the world (Cifuentes & Shih, 2001). As collaboration among multicultural teams increases (Iivonen et al., 1998) and corporations face demands to collaborate internationally (Agerup & Busser, 2004), the development

of cross-cultural awareness is in dire need. This growing trend has led to the work of using educational technology to foster the understanding and appreciation of global citizenship (David et al., 2004). It also signalizes the infusion of a cross-cultural communication curriculum (Teng, 2005) to provide opportunities for students to succeed in the future work place (Massetti & Lobert, 1996).

Successful intercultural communication takes more than memorizing rules (Dattner, 2005); besides providing opportunities for socialization (Sanchez-Burks et al., 2003), other methods in bridging the cultural divides include understanding the complexity of intercultural communication and getting to know the individuals within various cultures (Gebhard, 2002). In addition, the maintenance of learner-centeredness in designing activities (Saito & Ishizuka, 2005) and integrating experiential learning in the teaching of cross-cultural communication are highly emphasized (Kalfadellis, 2005).

The Project

Purpose

To follow the invariable trend in international interactions as a result of economic interdependency (Alatis, 1986), and the promotion of cross-cultural communication in the classroom as a goal to increase understanding among people from diverse cultural backgrounds (Zhu, 1991), a cross-cultural collaborative project was designed for a group of college students in Taiwan and the U.S. in Fall 2005 as a vehicle to promote international understanding. The Taiwanese institution grants primarily four-year degrees for majors in medical related fields, marketing, business, social science and humanities. The U.S. institution is a two-year college offering two-year terminal degrees, vocational certificates and lower division transferable courses to four year institutions.

Through this project, the collaborative outcome of the cross-cultural teams was studied, the students' perceptions on the collaboration were explored, and their collaborative behaviors including the challenges encountered, expectations for the project, group interactions, online communication behaviors, the development of a community, communicative styles, and enjoyment of the project were compared between the students of these two countries.

The Participants

The participants in Taiwan were 29 freshmen and sophomores of various academic majors who registered for a Cross-cultural Communication course to fulfill their general education requirement in the social science area. It was the first time a cross-cultural communication course was offered at this Taiwanese institution. In spring 2005, a pilot project was offered to a group of junior college level students majoring in English. The course description was available in the university's registration system and was accessible on the internet. The twenty students in the U.S. were recruited from two classes of Group Communication and one class of Interpersonal Communication. The Group and Interpersonal Communication courses fulfilled an area of the general education requirement and were both transferable to four-year institutions. The U.S. students were self-selected based on the time they spent online weekly and how comfortable they were with computers. For them, the cross-cultural collaborative project was one of the options for the term paper.

The Collaborative Task

The collaboration lasted for seven weeks from the seventh week of the Taiwanese semester and the tenth week of the U.S. semester. The students in Taiwan were randomly divided into five groups while the U.S. students formed the same number of groups based on the class cohorts they belonged to. Later, the groups from both sides were paired up to form five cross-bordered groups. Each group had about the same number of students from both countries.

Through the Blackboard online course management system hosted by Fresno City College, each group was required to complete a PowerPoint project focusing on comparing and contrasting the cultures of Taiwan and the U.S. The Blackboard course system features asynchronous threaded discussions, online collaborative tools such as whiteboard sharing, emailing, synchronous chats and assessments. The groups were required to include an analysis of their own collaborative process in a final report.

Before the students were broken into small groups, central forums were offered for the participants to acquaint and develop familiarities with one another. The topics of the central forums included self introductions and a discussion on local attractions. Starting from the fourth week of the collaboration, the students began small group discussions on generating group topics and creating a plan of action for the final project. The students were asked to submit a group timeline and a draft of the PowerPoint slides for the instructors to provide feedback prior to their final presentations.

In addition to the task-oriented forums, a social forum titled "Corner Café" was organized for non-task oriented discussions. Namely, this forum was available for the students' informal exchange of ideas and development of friendships.

Besides, two problem-solving forums were set up for the Taiwanese and the U.S. students respectively. The purpose of these forums was to help resolve the local issues related to project completion. In this forum, the Taiwanese students were given the latitude to use their native language to communicate with their Taiwanese classmates and instructor.

Because the Blackboard system did not support photo posting and sharing, a Yahoo photo web site was created to allow the students to post photographs related to their projects. Accessing digital cameras to create online photos for this project was not a problem and each group managed to share or provide their personally owned equipments.

There were in-class computer laboratory hours reserved for the Taiwanese students. On their own time, the students in the U.S. accomplished these online activities unsupervised due to the difficulty in reserving computer laboratories.

Measurement

In order to thoroughly understand the collaborative process and outcome, a mixed research method combining qualitative content and quantitative comparative analyses were conducted. The data collection process is described below.

Surveys

Soon after the students were divided into small groups, a survey was administered to monitor their progress. This mid-term survey was used to identify the students' expectations for the project, the challenges they had encountered, and how well they understood the online instructions for the collaboration.

A final survey consisted of 58 questions was given at the end of the semester to assess the participants' acquisition of collaborative skills, group interactions, development of cross-cultural experience, online collaborative behaviors and the formation of a learning community. Except for some dichotomous and ordered questions surveying the students' backgrounds, most of the questions were on Likert scales ranging from strongly disagree to strongly agree. The students in the U.S. completed this survey online, and the Taiwanese students took it in class, with an oral translation of the questions from the Taiwanese instructor.

Online Messages and Student Interviews

Chat logs among members of the small groups and messages in the discussion forums yielded information for analyses on the students' interactive experiences. The Taiwanese instructor also met with each of the Taiwanese students three weeks before the end of the collaboration to gather individual perspectives on the collaborative outcomes.

Results

Challenges

From the thirty two students who completed the mid-term survey, the Taiwanese participants identified language barrier as one of the top concerns. Other difficulties expressed by participants from both

countries were time difference, logging in on a regular basis, finding a common time for online group discussions, motivating group members to participate, and making everyone responsible for the group work. While the Taiwanese students felt that they needed extra time to digest the messages posted by the students from the U.S. before they could formulate their thoughts to respond, the U.S. students felt that it was difficult to involve the Taiwanese students in group discussions. Many Taiwanese students admitted that they were too shy to express their opinions. However, it was obvious that once some of the Taiwanese students overcame their lack of confidence in English communication, they felt encouraged and wanted to engage more.

Also, some of the students thought it was hard to answer the demands in completing the group project. There were some others who desired more time to get acquainted with one another.

Students' Expectations for the Project

Many of the students expressed a desire of wanting to learn about communication, obtaining the knowledge of working in teams, making new friends, learning about different cultures, and gaining good grades. Some of the Taiwanese students wanted to learn English and get familiarized with using Microsoft PowerPoint. Many students in the U.S. wanted to learn about online communication because it was something they had little experience with.

The students expressed their hope to log in frequently for the project. They also hoped for the groups to get along and stay on task. Some Taiwanese students hoped for developing a harmonious relationship with their group members. In summary, it was apparent that many students were apprehensive about meeting and working with new people intra and inter-culturally.

Group Interactions

Some groups reported having better working relationships than others. To correct the problems of procrastinations and lack of communication which frustrated many students, some groups took the initiative to arrange face-to-face meetings with their local members. We noticed that as the motivated students took on leadership roles, they also carried more responsibilities.

In comparing Taiwanese and U.S. students' perceptions on interactions with their group members, independent sample t tests were performed to analyze the answers to the final survey. These interactions included the satisfaction with the overall group performance, the perception on how easy it was to make group decisions, how every member had contributed equally to the project, how well each student knew about his or her responsibilities, how involved each student was with the group project, and how happy they were with the outcome of the project. The students in the U.S. obtained statistical higher means in their satisfaction with the overall group performance, $t(32) = 2.25$, $p = .031$, a large effect size ($d = .8$); the level of easiness in making group decisions, $t(32) = 2.32$, $p = .027$, $d = .8$, a large effect size; how well they knew about their responsibilities with the groups, $t(31) = 3.55$, $p = .001$, $d = 1.22$, a large effect size; and how well they had contributed to the project, $t(16.90) = 4.70$, $p = .000$, $d = 1.73$, a large effect size. No significant statistical differences were found in how they felt that everyone had contributed equally, how well they knew about their group members' responsibilities, and how satisfied they were with the outcome of the group project. These results are summarized in Table 1.

Table 1

Difference in Group Interactions between the students in Taiwan and the U.S.

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	Taiwan		U.S.			
	M	SD	M	SD	t	p

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Satisfied with group performance	3.50	1.09	4.25	.85	2.25	.031
Easy to make group decisions	2.64	1.01	3.40	.88	2.32	.027
Knew my responsibilities	3.86	.66	4.58	.51	3.55	.001
Did my best for the project	2.79	1.31	4.55	.61	4.70	.000[a]

[a]Because Levene's $\underline{F}$ was statistically significant (p < .05), the "equal variances not assumed" $\underline{t}$ was used.

Online Communicative Behaviors

The t-tests showed significant differences in the following online behaviors between the students in the U.S. and Taiwan. These behaviors included logging in to the project website without communicating, t (31) = 2.10, p = .044, with a medium to large effect size (*d*) of .7; enjoying reading the online messages posted by others, t (31) = 2.37, p = .024, *d* = .8, a large effect size; enjoying responding to the classmates, t (31) = 4.52, p = .00, *d* = 1.6, a very large effect; and not feeling comfortable communicating online, t (31) = -3.65, p = .001, *d* = -1.3, a very large effect. The students in the U.S. enjoyed the online interactions more by posting and responding to messages. They also felt more comfortable in online communication. However, there were more of them logging in to the course web site without communicating with others. Table 2 presents these results.

Table 2

Difference in Online Communicative Behaviors between the students in Taiwan and the U.S.

	Taiwan		U.S.			
	$\underline{M}$	$\underline{SD}$	$\underline{M}$	$\underline{SD}$	$\underline{t}$	$\underline{p}$
Logged in without communicating	2.93	1.21	3.84	1.26	2.10	.044
Enjoyed reading messages	3.79	.70	4.32	.58	2.37	.024
Enjoyed responding to classmates	3.36	.74	4.42	.61	4.52	.000
Did not feel comfortable communicating online	2.93	.92	1.68	1.00	-3.65	.001

The Development of a Community

There were statistical differences between several indicators for the development of a community through the execution of t-tests. Particularly, the U.S. students showed higher average means of knowing group members on a deeper level, t (31) = 2.41, p = .022, *d* = .8,

a large effect size; feeling supported by group members t (31) = 4.56, p = .00, d = 1.6, a very large effect size, and developing closer relationships with classmates, t (31) = 4.33, p = .000, d= 1.5, a very large effect size. Table 3 presents these results.

Table 3

Difference in the Development of Community between the students in Taiwan and the U.S.

| | Taiwan | | U.S. | | | |
	M	SD	M	SD	t	p
Knew group members on a deeper level	4.00	.56	4.53	.70	2.41	.022
Felt supported by Group members	3.29	.73	4.42	.69	4.56	.000
Developed closer relationships with classmates	3.36	1.08	4.63	.60	4.33	.000[a]

[a]Because Levene's F was statistically significant (p < .05), the "equal variances not assumed" t was used.

Communicative Styles

When asked about how well they understood the instructions for completing the project, the Taiwanese students appeared to be more hesitant in seeking help. They also relied on their local group members more than on the instructors in solving problems. Some Taiwanese students admitted that they did not pay enough attention to the project while others were reluctant to ask for help, for fear that they might become a burden to others. Nevertheless, the students in Taiwan were appreciative of receiving help from their U.S. group members. Although the students in the U.S. seemed to be more comfortable in asking questions and seeking help, some of them preferred telephone or face-to-face communication to communicating online. Some students in the U.S. avoided asking questions because they did not want to be judged negatively. The following two statements revealed some reasons of what might have prevented the students from asking questions:

"The language barrier or just the fact that we are shy and think we could do it on our own."

"Sometimes it's laziness, and other times it's just my own pride that keeps me from asking for help."

The students from both sides were compared on how easily they communicated with others. The two t-tests indicated significant differences in how easily they initiated a conversation, t (32) = 2.78, p = .009, d = 1, a large effect size; and how they expressed themselves, t (32) = 2.19, p = .036, d = .8, a large effect size. It was easier for the students in the U.S. to converse with others and express themselves. Table 4 shows these results.

Table 4

Difference in Communicative Styles between the students in Taiwan and the U.S.

| | Taiwan | | U.S. | | | |
	M	SD	M	SD	t	p
Initiated conversation easily	3.50	.76	4.20	.70	2.78	.009
Easy in expressing oneself	3.29	.91	3.90	.72	2.19	.036

Enjoyment

When the participants were surveyed about what they had enjoyed most at the initial stage of the collaboration, they reported the following: learning to collaborate with efficiency, learning new knowledge and new cultures, developing relationships with group members, and learning about mutual respect. Some students in the U.S. said they enjoyed having more opportunities in getting to know their local members by working together in the same groups. The students in Taiwan enjoyed receiving comments from their U.S. counterparts.

The results of the comparisons between the two cohorts in their enjoyment of the collaborative project indicated significant differences in how they enjoyed working in groups, t (17) = 3.27, p = .005, d = 1.2, a very large effect size, and how they liked communicating with their project partners, t (32) = 3.80, p = .001, d = 1.4, a very large effect size. Apparently, the students in the U.S. enjoyed communicating and working in groups more than the Taiwanese students. No statistical difference was found in how they enjoyed working with members from the other country. Table 5 summarizes these results.

Table 5

Difference in Enjoyment of the Project between the students in Taiwan and the U.S.

| | Taiwan | | U.S. | | | |
	M	SD	M	SD	t	p
Enjoy working in groups	3.93	.92	4.79	.42	3.27	.005[a]
Enjoyed communicating with classmates	3.71	.83	4.65	.49	3.80	.001[a]

[a]Because Levene's F was statistically significant (p < .05), the "equal variances not assumed" t was used.

Interviewing the Taiwanese Students

The attrition problem of the Taiwanese students adversely affected the collaborative process and outcome. Eight of the 29 Taiwanese students dropped out of the class by mid-term and only 16 of them participated in the final presentation. There had been absences in class throughout the semester. To understand why these students dropped out, personal interviews were arranged. According to these students, they were overwhelmed by the course load and had difficulty in using English to communicate.

Many of them had mistakenly regarded the course as an English conversation class. Others were unaware of the intercultural communication requirement when they signed up for the course. Four of the drop-outs were from the same class in the Dental Technology department and reported that they had followed their peers to join this class without understanding the nature of the class. While most of them were intimidated by the partial course requirement to present and interact in class, many of these students recognized their laziness and lack of motivation to learn as the main reason for leaving the class.

The students who stayed to complete the project were also interviewed. The problems that inhibited their collaborative activities were the difficulty in navigating an English course web site, limited computer skills, technical problems such as accessing the synchronous chat sessions, poor time management skills, as well as unsatisfactory group participation and interaction.

Despite the problems cited above, several Taiwanese students reported learning about the American vocabulary, systems and cultures. Some of them said they had learned to extend their potential, been inspired to be proactive, expressive and confident through the collaborative process.

Online Activities

The most visited discussion forum was "Corner's Café," a social forum where non-task related conversations took place. In this forum, we observed the students' enthusiasm in sharing information about their lives and experiences in addition to exchanging thoughts and encouragement with one another. The students were also involved in a central forum featuring discussions on local attractions and activities. Even the less participative students became visible in this forum.

There were no activities observed in the problem-solving forum for the U.S. students while the Taiwanese students used theirs sporadically. Even though the Taiwanese students were encouraged to use their native language to communicate in this forum, the contributors were those who had been originally motivated and communicative to the project requirements.

One of the groups was highly collaborative and had managed to mail candy packages to their overseas partners. This activity bonded the members with growing trust and motivation. As a result, a strong sense of cohesiveness and enjoyment was demonstrated through their final work.

On the contrary, another group procrastinated and did not respond to the project requirements for most of the time. When the U.S. students finally sensed the urgency of their failing performance, they developed negative attitudes against their non-involved Taiwanese members. The permeation of resentment adversely affected the project outcome.

Finally, several groups' attempt in arranging synchronous conferences was challenged by the difficulty of getting everyone online simultaneously. The groups with clear establishments of leadership were more persistent in problem-solving as well as the processing of group activities.

Discussion

Because of the Taiwanese students' misperception of the cross-cultural project as an English course, many of them joined this project with a language learning mentality. As a matter of fact, many of them signed up for the class without knowledge of the course content and instructional methods. Their intimidation, shyness and lack of motivation led to the early attrition. The students in Central Taiwan University take most of their courses with their assigned class cohorts and one of the concerns expressed by the Taiwanese students in this class was that they did not know their group members well enough to collaborate. In addition, it has been known that many of the students taking the general education elective classes are less motivated to succeed. Poor attendance has been a problem for many of these classes. Attracting students who are motivated and interested in cross-cultural collaboration to take an elective course with a less appealing schedule is a challenge.

The morale and motivation seemed to be problematic for the students in the U.S. too. For a long time, they were confused about the collaboration. The instructors had to repeatedly remind them of the concept of one combined project for each cross-bordered group to help them understand the nature of the collaboration.

Even though the students in Taiwan were not confident in using English to communicate, the more they received positive comments from their U.S. partners, the better they felt about themselves in their collaborative activities. It also seemed that the Taiwanese students preferred building relationships more than their U.S. partners. The fact that they were more expressive in social forums showed that they needed more assurance to learn about their partners before taking on the actual collaborative tasks. On the contrary, the U.S. students were anxious about completing their projects by making more inquiries on the details of the collaboration. In fact, the difference in semester schedules of the two institutions made it difficult to coordinate the collaboration. The Taiwanese students were barely prepared and those in the U.S. were anxious to complete their assignments when the collaboration began.

The results of this study showed a clear difference in how the students from both sides communicated. Compared to the Taiwanese students, it was easier for the students in the U.S. to initiate a conversation with others and express themselves openly. These findings complied with Mathews' (2000) comment that South Asians avoided freely expressing their feelings and thoughts to others in order to maintain harmony. Along with the fact that the Taiwanese students reported feeling more uncomfortable in communicating through an online environment, these differences indicated that the Taiwanese students were more reserved when communicating with others. On the other hand, the U.S. students in this study demonstrated more enjoyment in communicating online and working in groups. All of these variances and the Taiwanese students' lack of English proficiency resulted in the different collaborative behaviors between the students of both countries. Some researchers pointed out that Westerners and Asians demonstrated different online posting behaviors, and Asian students were disadvantaged in class discussions due to the emphasis on the master-student relationship in their educational systems (Warden, Chen, & Caskey, 2005). In many Asian countries, teachers structure learning by lecturing to large groups (Chow, 1995). As the students in Taiwan rely heavily on the teachers' guidance (Teng, 2006), they have been trained in rote learning to avoid actions that would lead to criticism and embarrassment (Warden et al., 2005). Expressing opinions in groups can thus be intimidating for them.

With regard to group interactions, it was easier for the students in the U.S. to make group decisions. The students in the U.S. also showed greater satisfaction with their group performances and were more knowledgeable of their responsibilities for the project. Compared to the Taiwanese students, the U.S. students agreed more that they had participated in the group projects to the best of their abilities. It is postulated that because of the high-context cultural background of the Taiwanese students (Hofsted, 1980, 2001), they tend to be non-expressive of their displeasure to avoid confrontations (Mathews, 2000) with their group members, which might have affected their level of satisfaction with the collaboration. As for decision-making, Asian parents seemed to make most of the important decisions for their children, especially those related to academics and careers (Mathews, 2000). Taiwanese students are rarely given the opportunity to decide on their own. Like many other Eastern instructors, Taiwanese instructors adopt pedagogies which have led to the students' passive learning behaviors (Chow, 1995). Because creativity, problem-solving and working in teams is seldom emphasized in the Taiwanese classrooms, many of the students in Taiwan are not used to collaborative learning. These can probably explain why the Taiwanese students in this study were less aware of their responsibilities for the groups and were less involved.

When compared in the aspect of community building with the Taiwanese students, the students in the U.S. felt that they were more supported by their group members, had developed closer relationships with their classmates and had known their group members better through this project. According to McMillan and Chavis (1986), the investment in community events was one of the features of shared emotional connection, an element of psychological sense of community. Undoubtedly, the less involved Taiwanese students felt less integrated into the online community. Also, because the Taiwanese students were less experienced with making PowerPoint slides, many of the U.S. students took the lead in this activity. For those Taiwanese students who assumed leadership positions in their groups, they felt compelled to take on most of the responsibilities when others did not contribute. When equal participation was lacking, it became difficult to ensure constant interaction among group members. McMillan and Chavis (1986) said that the less people interacted, the less likely they were to become close. Overall, the U.S. students showed greater urgency in completing the group work. The divide in the sense of importance of task completion between the participants of the two countries could have led to the difference in the sense of community.

Interestingly, we found that more of the students from the U.S. logged in to Blackboard without communicating. While it was impossible to compare the frequencies of message posting and responding between the students of the two sides due to partial corruption of data retrieval from the Blackboard system, several hypotheses can be made. As Rafaeli, Ravid and Soroka (2004) indicated, online lurking, or the behaviors of people who read the postings but do not contribute postings of their own (Klemm, 1998) could be affected by both dispositional and situational variables. In studying the behavior of online lurking, Nonnecke and Preece (2001) provided several reasons for its possible cause. Some of these reasons may apply to the U.S. students in this study. These possible reasons include the observed lack of motivation to participate, the underdeveloped relationships with the group members, technical difficulties with the course software, and the fact that they spent much time at work which might have influenced their devotion to online activities. Our analysis showed that the students in the U.S. significantly spent more time at work than the Taiwanese students,

$t(27) = 2.57$, $p = .016$, $d = .95$, a large effect size. Aside from these, the short duration of the collaboration might have negatively affected the group congruency and the sense of belonging. Another possible reason was that the posting requirement was not enforced to the students in the U.S. in spite of the emphasis on activity tracking and constant reminder of daily log-in.

Conclusion

One thing we have learned is that the students from the U.S. were more expressive which was reflected in their higher level of enjoyment in posting, reading, and responding to online messages. They were also more conscious about their responsibilities with the groups and content with their own contributions. At the same time, these students were willing to reach out to help their Taiwanese partners. With shyness and language barrier in the way, the students in Taiwan were more hesitant in seeking help, especially from the instructors.

In terms of the development of an online community, this collaboration helped the students in the U. S. more in developing closer relationships with their group members.

The popularity of the social forum and the discussion on intercultural explorations implied a need to strengthen the relationship building process for intercultural collaboration to flourish and succeed. To facilitate the development of a learning community, all participants should be involved in team building activities at the beginning of the project

Though this study was limited to a small sample, the results provided several insights for future studies in cross-cultural communication and collaboration. Our experience revealed that a structured participative guideline should be communicated to the participants well to avoid confusion. A rubric of weekly collaborative content in the participants' native languages can be helpful. It is also important to ensure that the non-English speaking participants have basic English proficiency and motivation for cross-cultural collaboration conducted in an English-speaking environment. Therefore, a well-defined screening process can help identify potential participants. In addition, a collaborative web site designed with the consideration of the cultural context of users can reduce the anxiety of non-English speakers.

Successful cross-cultural collaboration is dependent on the participants' familiarity with teamwork and online communication skills. Therefore, a well structured orientation focusing on collaborative strategies should be provided to the participants and reinforced throughout the collaborative process. By doing this, the participants will acquire effective online collaborative strategies without depending solely on synchronous conferencing sessions to communicate effectively.

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