5 Collaborative tasks in telecollaboration: their challenges and potentials

Hisae Matsui[1]

Abstract

This chapter reports the challenges that both the students and the teachers experienced in a telecollaborative project between a Japanese university and an American university. In this semester-long project, the students in groups of three to five from both universities worked collectively mainly asynchronously and in occasional synchronous sessions. The project was originally designed in 2017 with the expectation of incorporating 'collaborative tasks' (O'Dowd & Ware, 2009), then redesigned in 2018. To examine how the students in both years perceived their collaborations and effectiveness, the results from online surveys from both years were compared. Furthermore, two groups from 2018, which experienced difficulties, were examined to reveal the causes of the problems. These results indicate that rather complicated tasks raised more logistical challenges than linguistic challenges. It became clear that the students experienced various challenges, which include scheduling synchronous sessions, unaligned visions on the final products, and lacking consideration for non-native speakers in synchronous sessions. These challenges in 'collaborative tasks' suggest that the success of a project is heavily dependent on the simplicity of the project design, sharing the same understanding at the beginning of the project, as well as the linguistic consideration to their group members.

Keywords: project design, collaborative tasks, team learning behavior, team effectiveness.

1. Princeton University, Princeton, New Jersey, United States; hmatsui@princeton.edu; https://orcid.org/0000-0002-8211-3433

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1. Background

Telecollaboration has been adopted to various disciplines for online intercultural exchange, interaction and collaboration (Unicollaboration, 2014). The focus of the prominent telecollaborative projects, such as Cultura, Soliya, and eTandem, has been on the development of linguistic and intercultural competences (Helm, 2015). As a result, the collaboration aspect of telecollaboration is often overshadowed by these elements.

Collaboration is primarily conceptualized as a process of shared meaning construction in computer-supported collaborative learning. As pointed out by Ilic (2013), "[t]he meaning-making is not assumed to be an expression of mental representations of the individual participants but is an interactional achievement (Stahl, Koschmann, & Suthers, 2006)" (p. 33). Van den Bossche and his colleagues, who described collaboration as building mutually-shared cognition, identified Team Learning Behavior (TLB) in effective groups, namely 'construction' (describing a problem), 'co-construction' (building a shared conception), and 'constructive conflict' (negotiating different interpretations) (Van den Bossche et al., 2011). Among these elements, they pointed out that "[c]onstructive conflict was found to be a significant behavior in the process of building [a] shared mental model" (Van den Bossche et al., 2011, p. 295).

Furthermore, TLBs are considered to give rise to mutually-shared cognition, and it leads to higher perceived team effectiveness (Van den Bossche et al., 2011). Team effectiveness, which can be defined as a team's capacity to achieve its goals and objectives (National Research Council, 2015), has three dimensions: "the degree to which the team's output meets the standard of quality [...], the degree to which the process of carrying out the work enhances the capability of members to work together in the future [...], and the degree to which the teamwork contributes to the professional growth of the team members" (Van den Bossche et al., 2011, p. 296). Although these studies focused on face-to-face collaboration, these elements also seem crucial in telecollaboration, especially in telecollaboration that requires building mutually-shared cognition.

In terms of collaboration in telecollaboration, the types of activities and tasks have significant influences on the nature of collaboration. O'Dowd and Ware (2009) classified various telecollaborative activities into 12 categories and then identified three types of communicative activities in telecollaboration: information exchange tasks, comparison analysis tasks, and collaborative tasks.

The first type, information exchange tasks, is designed for sharing personal and cultural information and opinions (e.g. Lee, 2006; Vinagre, 2005). While this type of task mainly focuses on providing a partner with personal information, comparison analysis tasks, the second type, go beyond that as they require comparisons or critical analysis of cultural products from both sides (e.g. Furstenberg, Lewet, English, & Maillet, 2001). The third type, collaborative tasks, requires working together to produce a joint product or conclusion (e.g. Belz, 2007; Zaehner, Fauverge, & Wong, 2000). Although this type of task usually involves a great deal of coordination and planning, they are also expected to bring about substantial amounts of negotiation of meaning both on linguistic and cultural levels as the students are trying to reach agreement on their final product (O'Dowd & Ware, 2009, p. 178). Even among tasks categorized under 'collaborative tasks', the nature of collaboration varies. While some tasks require students to complete their written works, such as translations, in their target language with help from their partners who are native speakers of the target language (Ware & O'Dowd, 2008; Ware & Perez-Canada, 2007), the other tasks involve decision-makings in collaboration such as creating joint presentations (Zaehner et al., 2000).

Considering their characteristics, collaborative tasks, especially those of the tasks, which require decision-making processes, seem to be suitable for building mutually-shared cognition and increasing team effectiveness as a result; however, there is no previous study which dealt with TLBs and team effectiveness in collaborative tasks. Therefore, in this study, two projects, which were similar in design, were analyzed to reveal how the students collaborate and consider their effectiveness in terms of the nature of collaboration, that is, 'construction', 'co-construction', and 'constructive conflict' (Van den Bossche et al., 2011).

2. Case study

2.1. Participants

The students from an English class in a Japanese university and the students from a Japanese class in an American university participated in this study. The students were grouped into groups of four to six students which had one to four students from each university per group.

In 2017, the number of students in a Japanese university outnumbered the number of students in an American university while it turned out to be the opposite in 2018. These numbers are dependent on the enrollment number each year, which is beyond the researcher's control (Table 1).

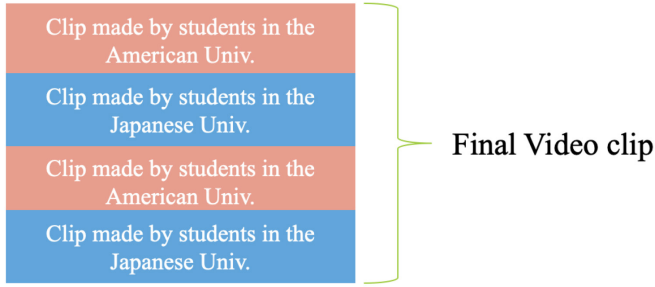
Table 1. Participants of each school in each year

Year	Students in a Japanese university	Students in an American university
2017	27	12
2018	11	20

2.2. Project description

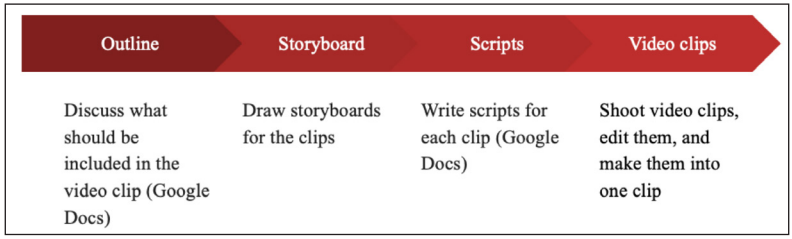
In both years, the goal of the project was creating two short video clips, and each clip should include clips from both universities as Figure 1 below indicates.

Figure 1. Model for the final video



In both years, the video production process took the following steps: (1) outline, (2) storyboard, (3) scripts, and (4) video clips (Figure 2).

Figure 2. Stages for video production

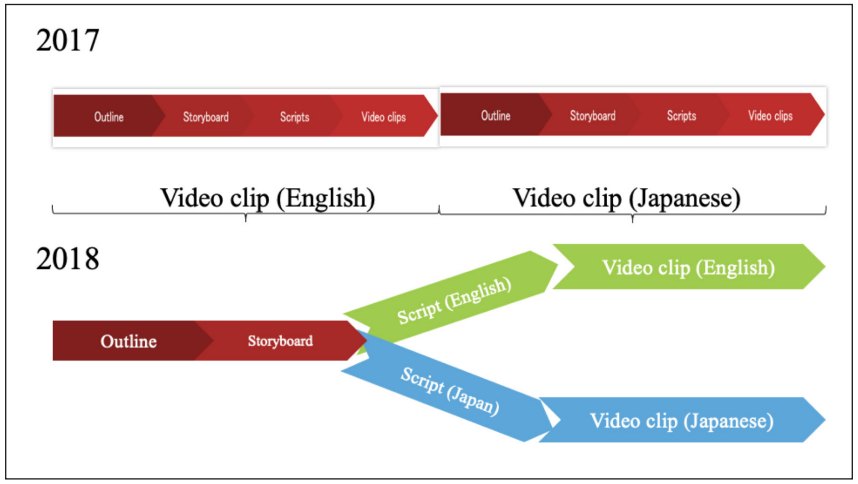


For the project in 2017, the students made two separate video clips: one in Japanese and the other one in English. These two clips had different themes and different storylines. The one in Japanese was a promotion video for studying abroad for a Japanese audience while the one in English was a promotion video for studying Japanese for an American audience.

Although all the students were expected to dedicate their efforts to both clips, the Japanese students were assigned to lead discussions for the final English video and then edit the clips to complete the final video, while the American students were assigned to lead discussions for a final video in Japanese and edit the clips to complete a final Japanese video. Therefore, the Japanese students took the initiative in making a final video in English and the American students took the initiative in making a final video in Japanese.

The students in the project in 2018 also made two clips; however, they had one theme and one storyline. The theme of the video was promoting studying foreign languages. The students had to discuss and agree on one storyline and storyboard for the story. Subsequently, the Japanese students were assigned to take the initiative to write scripts and edit clips to complete the final video in English. In contrast, the American students were assigned to take the initiative to write scripts and edit clips to complete the Japanese final video. The comparison of the process of video production is shown in Figure 3.

Figure 3. Stages for video production in 2017 and 2018



As Figure 3 indicates, the students in the 2017 project had a short discussion period for each step. Each step was led by the assigned group (Japanese or American), which was in charge of the clip (English or Japanese). On the other hand, the students in the 2018 project had a more extended discussion period for each step. Meanwhile, they had to have clear mutually-shared cognition for the outline and storyboard since they would write scripts based on them.

The students in both universities had discussions with the students from the other university using the online discussion board Slack and video conferences on Skype (2017) and Zoom (2018) over 11 weeks in both years. After about two weeks of a 'getting to know each other' stage in asynchronous and synchronous means, the students moved into the planning stage. The students initially exchanged their opinions on online discussion boards; thereafter, they concluded their discussion in video conferences.

In 2017, the students from a Japanese university were able to have synchronous sessions with their group members from an American university during their class time; therefore, the scheduling for Skype sessions never became a problem.

However, in 2018, it was impossible to have synchronous sessions during their class time because the class times were either too early or too late for their partner schools. Therefore, they had to decide synchronous session times on top of the discussion for the content.

In both years, the students exchanged their opinions both in English and Japanese as the projects were parts of the world language curricula. In 2017, all exchanges for a final video in English were conducted in English, and all exchanges for a final video in Japanese were conducted in Japanese. In 2018, all exchanges for the outline stage were conducted in English, all exchanges for the storyboard stage were conducted in Japanese, and discussions on the English script were carried out in English while discussions on the Japanese script were done in Japanese. The language choice (English or Japanese) for a synchronous session for the script stage was left to the students.

2.3. Data collection and analysis

The analysis of the students' perception of collaboration was conducted in the following stages. First, the results from the survey on the students' perceptions of TLBs and team effectiveness in both years were analyzed and compared to see if there were any tendencies in each year. Next, the results in 2018 were more closely analyzed by groups to examine the similarities and differences among groups. Lastly, two problematic groups were selected based on the analysis in the previous stage and both survey results and actual interactions were analyzed to reveal the causes of the problems.

2.3.1. Instruments

In order to investigate students' perceptions of the project and collaboration, an online survey was developed. The survey had both structured and unstructured items. The structured items were expected to measure two elements of the students' perceptions; TLBs and team effectiveness. The questionnaire was adapted from the instruments that Van den Bossche and his colleagues (2011) developed, and had five-point Likert scales, which allowed the students to

express how much they agree or disagree with a particular statement. The sample items for each aspect in the questionnaire are shown in Table 2.

Table 2. Sample items for the aspects (adapted from Van den Bossche et al., 2011, p. 298)

Category	Aspect (shortened version)	Sample item
TLBs	Construction (construction)	"If something is unclear, we ask each other questions"
	Co-construction (co-construction)	"Information from team members is complemented with information from other team members"
	Constructive conflict (conflict)	"Opinions and ideas of team members are verified by asking each other critical questions"
Team effectiveness	Team performance (satisfaction)	"I am satisfied with the performance of our team"
	Team viability (future)	"I would want to work with this team in the future"
	Team learning (learning)	"As a team, we have learned a lot"

The unstructured items included questions for overall impressions and suggestions for future projects. The questionnaire was translated into Japanese for the students in a Japanese university to eliminate the language barrier.

2.3.2. Data collection procedure

Two types of data were collected for this study: data from the online survey and actual interactions among students on Slack and Zoom in 2018. The online survey, which was mentioned above, was distributed to the students of both universities. Participation in the survey was completely voluntary, and the responses were collected anonymously.

The actual interactions were also collected upon each student's consent. At the beginning of the courses, the researcher distributed the consent forms in class to the students. After receiving the responses from the potential participants, the project groups were formed. Only the interactions both on Slack and Zoom,

which all group members had agreed to, were recorded. Only the participants' voices on Zoom were recorded through the audio recording software, Audacity, and no visual information was saved for this study.

After the interactions were recorded, the recordings were transcribed for analysis. All of the participants' names and group names were coded through the process of transcribing so that no identities of the students were saved. The names which appear on the discussion board will also be coded in the same manner as described above.

3. Results

3.1. Comparing 2017 and 2018

To see the tendencies of students' perceptions in both years, the mean scores for each aspect of TLBs were displayed separately for each university and each year in Figure 4. The graph indicates that the scores for 'construction' in both universities and the score for 'co-construction' in a Japanese university decreased in 2018 while the score for 'co-construction' in an American university and the scores for 'conflict' in both universities increased in 2018.

In a similar manner, the mean scores for aspects of team effectiveness are shown in Figure 5. The graph indicates that all aspects except for the score for 'satisfaction' of Japanese students decreased in 2018.

The result of the overall impression of the success in the project, which is shown in Table 3, reflects these results. In 2017, all the students were satisfied overall with the process and outcome of the project; however, in 2018, a small number of students from both universities expressed their dissatisfaction.

Although the majority of the students in 2018 were satisfied overall, it is worthwhile looking into the details of students' perceptions in 2018; therefore, in the next section, the data from 2018 will be analyzed group by group.

Figure 4. Aspects of TLB (2017 vs. 2018)

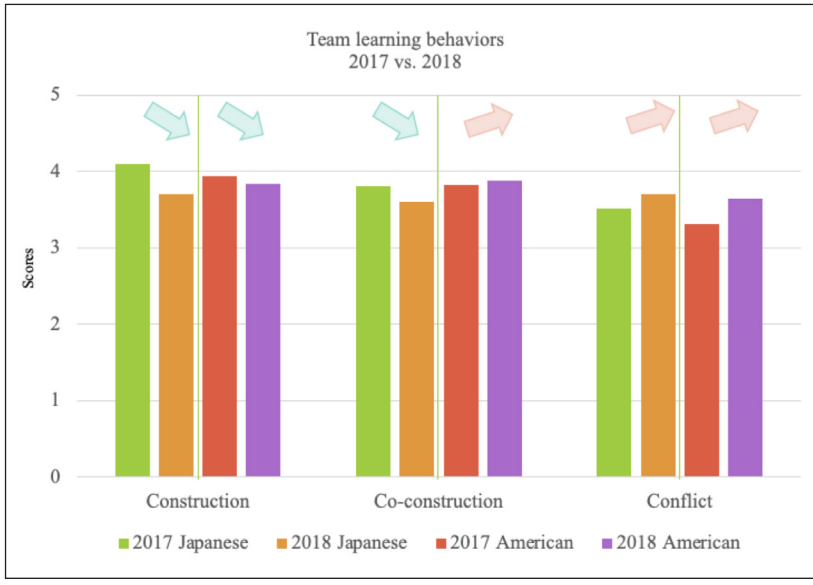


Figure 5. Aspects of team effectiveness (2017 vs. 2018)

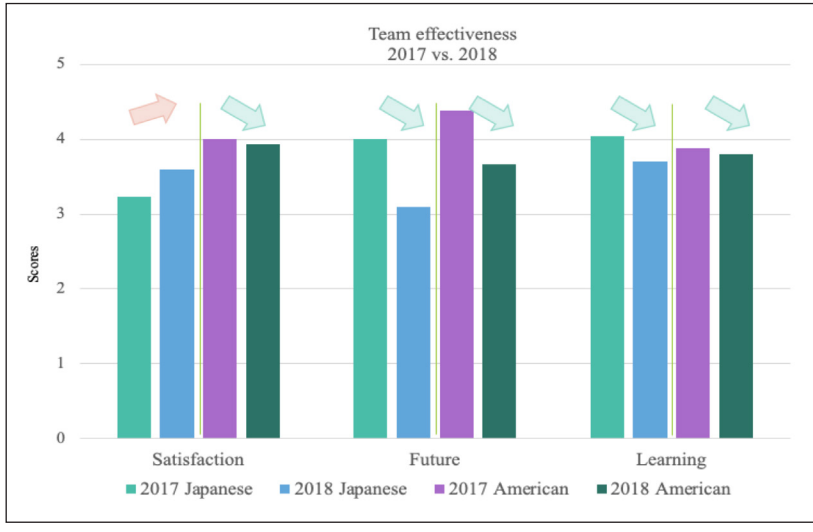


Table 3. Percentage of the students who thought the project was successful

Year	Japanese side	American side
2017	100%	100%
2018	95%	91%

3.2. Comparing groups in 2018

In order to investigate further on the details of problematic groups, the mean scores of each aspect in TLBs and team effectiveness from 2018 were analyzed group by group.

The mean scores of the TLBs from each group are presented in Figure 6, and the mean scores of the team effectiveness from each group are presented in Figure 7. Both graphs indicate that Group C had the least successful collaboration overall.

As Figure 6 shows, all the aspects of TLBs are the lowest among groups, and 'conflict' has the lowest score among three aspects: 3.38 in 'construction', 3.00 in 'co-construction', and 2.75 in 'conflict'. These scores indicate that although the group members shared their ideas and asked each other questions, they had difficulty with negotiating different interpretations and building a shared conception.

Figure 7 shows similar tendencies. Group C has the lowest scores in all three aspects; 2.75 in 'satisfaction', 1.75 in 'future', and 2.5 in 'learning', which was by far the lowest among the groups. Considering the fact that the mean score for 'future' is significantly low, the group members were not satisfied. These results clearly indicate that Group C had difficulty carrying out the project.

Furthermore, the results from the question *Do you think this project was successful?* were examined further to identify which groups of students did not think the project was successful. The results indicate that one student from a Japanese university and one student from an American university did not think so as Table 4 shows. These students are from Group C and Group F.

Figure 6. Aspects of TLBs by a group from 2018

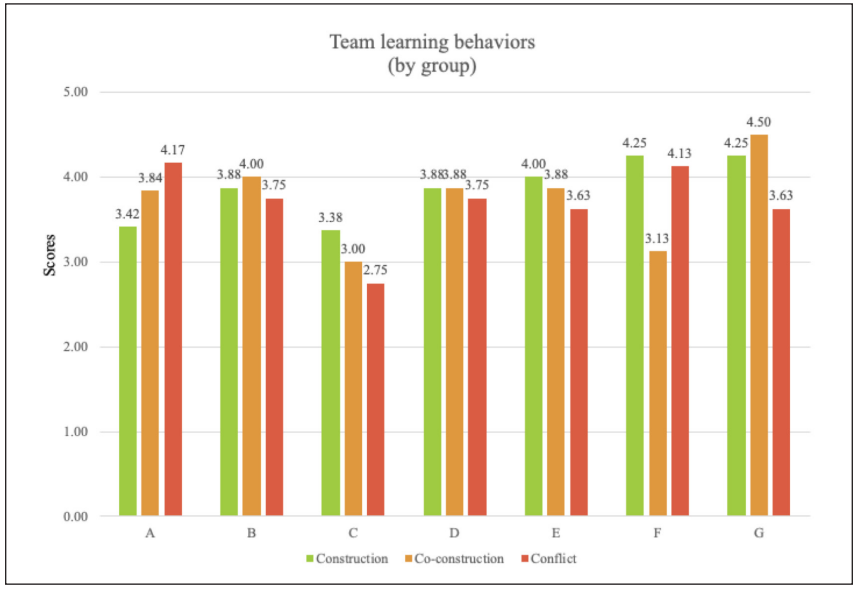


Figure 7. Aspects of team effectiveness by a group from 2018

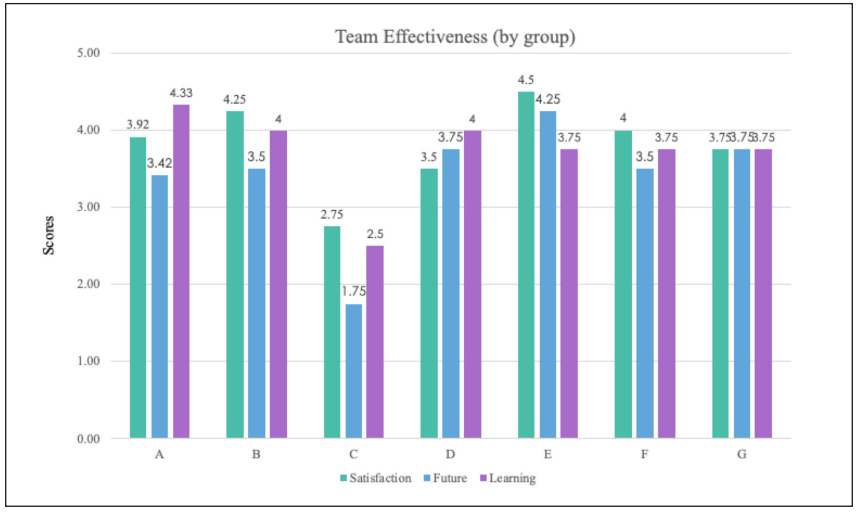


Table 4. Number of the students who thought the project was successful in 2018

Yes/No	Japanese side	American side
Yes	10	19
No	1	1

The mean scores of both TLBs and team effectiveness in Group F were not significantly low compared with other groups; however, there would be value in looking at their interactions. Therefore, in the next section, the actual interactions and narrative comments on the survey of Group C and Group F will be analyzed to reveal possible causes of the problems that the group members of these groups encountered.

3.3. An in-depth look of Group C and Group F of 2018

3.3.1. Group C

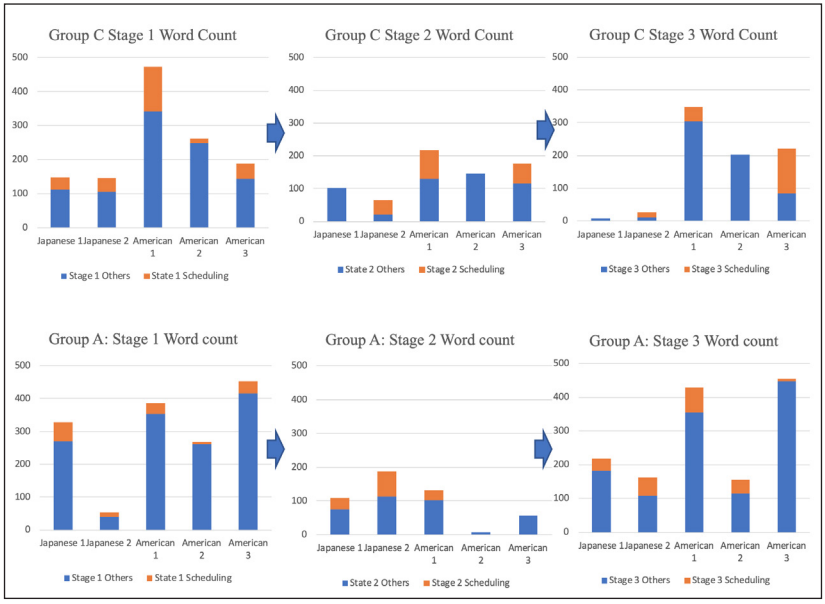
To analyze how they interacted with each other on Slack, words in the post from each group member were counted in three stages of video production: (1) discussion for an outline, (2) discussion for storyboard, and (3) discussion for video clip productions. All exchanges were conducted in English in Stage 1, in Japanese in Stage 2, and also in Japanese in Stage 3. Furthermore, the words on Slack in Group A were also counted in the same manner since Group A has higher mean scores for TLBs with an ideal ratio of three aspects, 4.17 in 'conflict' as the highest, followed by 3.84 in 'co-construction', and 3.42 in 'construction'.

Since the interactions among group members of Group C on Slack showed their struggles with scheduling synchronous sessions, the words were categorized further into two groups: one for scheduling and the other for other purposes, including discussion for the contents of the video.

These results are shown in Figure 8. Although the members of Group A also spent some time for scheduling, the members of Group C spent more time than the members of Group A. It is also noteworthy that the students from a Japanese

university posted less as they progressed. Especially in Stage 3, they posted close to nothing.

Figure 8. Word count for Group C and Group A



In Zoom sessions, it was often observed that certain students from an American university dominated the conversation in both Japanese and English sessions, and a student from a Japanese university often spoke fast and used his/her dialect in this group. These tendencies made it hard for non-native speakers to understand and speak out.

The responses to the narrative part of the survey revealed the reasons behind the phenomenon. Student B answered that he/she participated more actively in Zoom in his/her native language even though he/she participated actively both in English and in Japanese in Slack. He/she reflected on the sessions and mentioned: “it was hard to join the heated discussion among the students from xx university because (target language) is my second language”. The same student

also responded 'no' to the question *Do you think this project was successful?*, and commented, "it was not very fruitful. I'm not sure what I learned through this activity". To the question *What do you want to change to improve the project?* he/she answered, "make the purpose clear. There were often times that I got lost with what I was learning during the activities". Summarizing the above, Student B could not join the synchronous discussion and was at a loss with the purpose of the activity. As a result, he/she had the impression that he/she did not learn much from the project.

Student C said he/she participated more actively in his/her native language in Slack as well as in Zoom. He/she reflected on the exchange and mentioned: "I felt less comfortable and unable to express some of the more complicated ideas and suggestions that I had in (my target language), but in (my native language), I was fine". He/She also commented about the collaboration: "collaboration with (the partner university's) students does not seem worthwhile and adds extra work and stress without much, if any, benefits". To the question *If you have another opportunity to work with students (from other countries), what would you like to do?*, he/she answered, "if I had to work with students (from other countries) again, I would like to work with them while we are all on the same academic schedule and time zone (or at least +/- two hours)". These comments indicate that he/she could not participate in the synchronous sessions as much as he/she wanted. Moreover, he/she put value on being able to schedule the sessions. Due to these issues, he/she could not find this project valuable.

Student D claimed that he/she participated actively both in English and in Japanese in Slack but did not participate as actively in English nor in Japanese in Zoom:

> "Speaking with people over Zoom was just a little difficult because the conversation was often dominated by the same people, and I had a hard time getting a word in, though I didn't have a lot to say anyway".

Even though he/she did not have many opinions that he/she wished to express, he/she experienced a hard time joining the conversation both in Japanese and

English sessions because the conversation was often dominated by the same people, which was also observed in Zoom sessions.

3.3.2. Group F

This group did not have the lowest scores, like Group C. The mean scores of aspects of TLBs were not low. As Figure 6 indicates, the mean score of 'construction' was the highest (4.25) among groups and that of 'conflict' was the second-highest (4.19) among groups. The mean scores of aspects of team effectiveness were not very low as well. The mean score of 'satisfaction' was the thirst highest (4.00) yet that of 'future' was the third from the bottom and that of 'learning' was the second from the bottom.

In order to shed light on the problems, the contents of both Slack and Zoom sessions were analyzed. The analysis shows that they did not reach mutual understanding several times. During Zoom sessions, the teacher had to intervene in the discussion to clarify the points, which did not happen often in the other groups. In Stage 2, one part of the storyboard was not completed by one of the group members. Furthermore, one of the final videos did not have clips from the other university, and the other final videos did not make it on time. There were clearly misunderstandings among group members.

In the narrative part of the survey, Student A responded 'no' to the question *Do you think this project was successful?* and mentioned, "we came together out of haste and made a lot of poor last-minute decisions. Communication and language skills were not practiced very well" for his/her reasons.

Student B responded 'yes' to the question *Do you think this project was successful?*; however, his/her comment shows his/her discontent toward the group members from the other university. He/she mentioned,

> "I think (xx) university (Student B's university) student(s) is/are obviously more capable and dedicated to completing the project. The student(s) in (yy) university (the other university) took it not seriously

enough. When I watched the final version of our video, I wanted to delete the (the other university's) part(s)".

These comments show the problems that they encountered were caused by misunderstanding, miscommunication (possibly partially from lack of language skills), and uneven expectations from each side.

4. Limitation

Since the two projects in this study took place over two years with different groups of students, and also not being in a laboratory setting, it suffers from low external validity; therefore, results cannot be generalized to a population of interest yet. It is, therefore, necessary to conduct further studies to generalize an outcome of this study.

Furthermore, it is possible that other factors, such as their genders, ages, cultural backgrounds, personalities, and intercultural competences, also affected how they collaborated. In this study, however, only the factors mentioned in the narrative part of the survey were taken into consideration during the analysis. Further studies are necessary to examine other possible factors.

5. Pedagogical principles

Collaborative tasks indeed could facilitate collaboration as it is necessary to have a shared concept to create final products. However, if a project requires clearer shared concepts among telecollaborative groups, it could be very challenging. For the project in 2017, since each side took the initiative to make the assigned final clip, students from the other side often followed what the students from the university who took charge suggested. For the project in 2018, on the other hand, the students from both sides had to come together to share a clear understanding of the final products because there was only one outline and one storyboard for the final video clips as Figure 3 shows. It was extremely challenging for some

groups due to a lack of communication, language skills, and consideration of language use for their non-native group members. Moreover, logistic problems, such as scheduling conflicts, made communication more difficult. These problems may not be seen in face-to-face collaboration as Van den Bossche and his colleagues observed (Van den Bossche et al., 2011).

Having said that, collaboration with international peers has been and will be unmistakably crucial in the workforce in an increasingly globalized world. Experiences that the students are able to have through telecollaborative projects could be very beneficial for their future careers.

6. Conclusion

To make a telecollaborative project meaningful, instructors should consider various factors. First, it is vital to decide the type of collaboration while considering students' language levels. For example, a collaboration that involves decision-making requires an understanding of shared concepts. If the project requires a very clear idea about the final product, the students from both sides should be able to have a shared mental model, which could be very challenging for students with lower language skills. If the students have limited language skills, it may be a good idea to limit collaboration to ones which do not involve decision-making, 'information exchange tasks', or 'sharing cultural information' in teams (O'Dowd & Ware, 2009) and keep collaboration local for tasks which require shared mental models.

It is also extremely important to consider the types of tasks and means of communication if there are potential logistical issues such as scheduling. This is especially true if the countries are geographically apart, and the time difference is hard to work with. Having a 14-hour difference, finding times for synchronous sessions was extremely challenging for some groups in 2018. Their valuable exchange time could be consumed by mere scheduling. Although synchronous communication has its advantages, having only asynchronous might be a better choice if a potential problem exists.

Furthermore, making the students realize how they should communicate with non-native speakers is also important. Domination of the conversation, speed of the utterance, as well as usage of unfamiliar terms and dialect for non-native speakers, are important elements to consider during synchronous sessions. With consideration of these various elements mentioned above, telecollaborative projects could be successful, and meaningful learning experiences take place for our students.

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