SYNCHRONOUS SMALL-GROUP COLLABORATIVE WRITING VIA WEB-BASED WORD PROCESSING: WHAT FACILITATES OR CONSTRAINS LEARNERS TO ACHIEVE THEIR GOALS IN SUMMARY REPORTS?

by

Hye Yoon Cho

A thesis submitted in conformity with the requirements for the degree of Doctor of Philosophy
Department of Curriculum, Teaching and Learning
Ontario Institute for Studies in Education/ University of Toronto

© Copyright by Hye Yoon Cho 2018
Collaborative writing has become a common pedagogical activity in second language (L2) classes, informed by sociocultural theory and supported by studies highlighting the importance of peer interaction in learners’ language development (e.g., Storch, 2002). With the emergence of Web 2.0, web-based writing applications such as wikis, blogs, and Google Docs have been implemented into L2 writing activities. The few previous studies that have investigated interaction patterns in peer writing have found variations in these patterns and suggested that collaborative patterns might benefit students’ language learning (Storch, 2002).

Informed by sociocultural theory and motivated by the need to understand learners’ experiences in order to make online collaborative writing more beneficial to their learning, this study examined factors that mediate small-group interaction in synchronous web-based collaborative writing using Google Docs and text/voice-chat in the context of a debate club. Adult ESL learners from a voluntary debate club met weekly to practice English communication skills through debating. Four groups of three debate teams participated in this study (N=12). Data were collected from multiple sources including a survey questionnaire, debate summaries, screen recordings, and stimulated-recalls. The survey questionnaire elicited the learners’ background information and individual goals for the writing tasks. Debate summaries, transcripts of screen recordings, and stimulated recall interviews were analyzed to investigate interaction patterns of the groups and mediating factors in their collaborations. Interaction patterns of groups were
identified by employing Storch’s (2002) dyadic interaction model, revealing four patterns: facilitator/participants, collaborative, leader/participants, and cooperative. Guided by activity theory (Engeström, 1999) mediating factors of group interaction were identified.

The primary mediating factors influencing the quality of collaboration included participants’ goals and goal-directed actions, matches/mismatches between self-perceived and other-perceived goals, task representations, and modes of communication. In addition, participants’ goals were found to be reciprocally influenced by the group interactions. These findings help to explain why interaction patterns vary in collaborative writing groups and provide insights into how web-based collaborative writing activities can be designed and utilized in L2 writing classes.
Acknowledgements

My thesis is an outcome derived from multiple triangles of academic and social activities that stimulated me academically and provided me with generous support and encouragement. I wish to thank everyone in my PhD journey for such interactions. I would like to express my deepest gratitude to my dissertation supervisor, Dr. Alister Cumming, for his expertise, thoughtful guidance, and constant support for being always available for consultation through my thesis process. He also guided and encouraged me to grow as an independent researcher. Thank you, Alister, for enriching my thesis journey.

My sincere appreciation also goes to Dr. Julie Kerekes, one of my committee members, for her invaluable advice and support for the qualitative analyses in my thesis. I am truly grateful to Dr. Clare Brett, the other member of my thesis committee, for her guidance and support. I was inspired to conduct CMC research by taking her online course. My heartfelt appreciation also goes to my external examiner, Dr. Neomy Storch, for her thought-provoking questions and insightful suggestions on my dissertation. I also extend my sincere thanks to Dr. Jim Slotta and Dr. Jim Hewitt for their constructive comments and questions during my oral examination.

Also, I would like to thank Dr. Lourdes Ortega, who trained me as a researcher to pursue my dream during my Master’s program. My sincere thanks also go to Dr. Sun-Woong Kim and Dr. Deok-Jae Park who provided generous support for me to pursue graduate studies abroad.

This dissertation would not be possible without the kindness of my participants. I’m deeply indebted to my participants for their willingness to share their time and insights with me. Also, I would like to extend my profound gratitude to the English Debate Club Toronto and the co-organizer of the debate club, Garth Gayle, who was exceptionally supportive of my study, despite his hectic life.
I would also like to thank my friends and colleagues. I like to send a special thank you to Yuko, Gina, Choongil, In Chull, Heejin, Jinsuk, Reed, Jon, Jonathan, and David. Not only did you provide me with valuable comments and generous support for my study but also you kept me staying healthy, happy, and sane during my PhD journey.

Last but not least, I’m extremely grateful to my parents, Seok-Kyu Cho and Young-Min Kim, who supported me and my study-abroad for over a decade with unconditional love. I love you so much! I would like to express my appreciation to my baby brother, Sung-Ho Cho, and sister-in-law, Nam-Hee Kim, for being sweet, lovely, and supportive siblings. Finally, I would like to thank my family dog, Toto, for keeping my parents busy and happy during my absence. Thank you so much! I love you, all!

여러분 모두 사랑하고 감사합니다.
Table of Contents

Acknowledgements .................................................................................................................. iv

Table of Contents .................................................................................................................... vi

List of Tables ............................................................................................................................ viii

List of Figures ........................................................................................................................... x

List of Appendices ................................................................................................................... xi

Chapter 1: Introduction ............................................................................................................. 1

Chapter 2: Review of Relevant Theories and Research .......................................................... 6
  2.1) Theoretical orientations: Sociocultural theory and activity theory ................................. 6
      2.1.1) Sociocultural views of learning in L2 ................................................................. 6
      2.1.2) Learners’ goals .................................................................................................... 9
      2.1.3) Activity theory .................................................................................................. 10
  2.2) Previous research on collaborative writing ....................................................................... 14
      2.2.1) Collaborative writing in L1 ............................................................................... 14
      2.2.2) Collaborative writing in L2 ............................................................................... 15
      2.2.3) Web-based L2 collaborative writing .................................................................... 18
  2.4) Summary of literature review ......................................................................................... 27

Chapter 3: Methods .................................................................................................................. 29
  3.1) Research site and participants ....................................................................................... 29
      3.1.1) English Debate Club .......................................................................................... 29
      3.1.2) The participants .................................................................................................. 30
  3.2) Writing tasks .................................................................................................................... 33
  3.3) Google Docs and Skype as collaborative writing tools .................................................. 36
  3.4) Data collection procedure .............................................................................................. 36
      3.4.1) Participant recruitment and profiles ..................................................................... 36
      3.4.2) Training on online writing and screen recording tools ......................................... 37
      3.4.3) Debate summary writing sessions ....................................................................... 39
      3.4.4) Stimulated-recall interviews ............................................................................... 40
      3.4.5) Sources of data .................................................................................................. 41
  3.5) Analyses ........................................................................................................................... 42
      3.5.1) Selecting a focal group for initial analysis ............................................................ 43
      3.5.2) Analysis of interaction patterns in online collaborative writing ............................ 44
      3.5.3) Participants’ goals in the collaborative writing tasks ............................................ 47
      3.5.4) Analysis of influence of individuals’ goals on pattern of interactions .................. 47
      3.5.5) Factors that mediate learners’ collaboration ......................................................... 48
      3.5.6) Reliability and credibility ..................................................................................... 48

Chapter 4: Preliminary analysis: Focal group ......................................................................... 50
  4.1) The focal group selection ............................................................................................... 50
      4.1.1) The coding scheme for the focal group selection ................................................ 50
  4.2) Result of the focal group selection ................................................................................. 63
  4.3) Results for the focal group ............................................................................................. 64
      4.3.1) Interaction pattern ............................................................................................... 64
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.3.2)</td>
<td>Influence of individuals’ goals on pattern of interaction...75</td>
</tr>
<tr>
<td>4.4)</td>
<td>Other factors mediating peer interaction in web-based collaborative writing...86</td>
</tr>
<tr>
<td>4.4.1)</td>
<td>Mode of communication...87</td>
</tr>
<tr>
<td>4.4.2)</td>
<td>Task representation...89</td>
</tr>
<tr>
<td>4.4.3)</td>
<td>Matches/mismatches between participants’ self- and other-perceived roles...91</td>
</tr>
<tr>
<td>4.4.4)</td>
<td>Participants’ perceptions of peer feedback...91</td>
</tr>
<tr>
<td>4.4.5)</td>
<td>Participants’ perceptions of group work...93</td>
</tr>
<tr>
<td>4.4.6)</td>
<td>Familiarity with debate topics...95</td>
</tr>
<tr>
<td>4.4.7)</td>
<td>Technical glitches...96</td>
</tr>
<tr>
<td>4.5)</td>
<td>Summary of emerging factors that mediated Group 1’s interactions ...97</td>
</tr>
<tr>
<td>Chapter 5: Results for the Three Remaining Groups</td>
<td>100</td>
</tr>
<tr>
<td>5.1)</td>
<td>Interaction patterns...100</td>
</tr>
<tr>
<td>5.1.1)</td>
<td>Group 2...100</td>
</tr>
<tr>
<td>5.1.2)</td>
<td>Group 3...112</td>
</tr>
<tr>
<td>5.1.3)</td>
<td>Group 4...123</td>
</tr>
<tr>
<td>5.2)</td>
<td>Participants’ goals in writing tasks...136</td>
</tr>
<tr>
<td>5.3)</td>
<td>Factors that mediated participants’ collaborative writing activities...139</td>
</tr>
<tr>
<td>5.3.1)</td>
<td>Individual factors...140</td>
</tr>
<tr>
<td>5.3.2)</td>
<td>Instrumental factors...158</td>
</tr>
<tr>
<td>5.3.3)</td>
<td>Task factors...164</td>
</tr>
<tr>
<td>Chapter 6: Discussion</td>
<td>175</td>
</tr>
<tr>
<td>6.1)</td>
<td>Answers to the research questions...175</td>
</tr>
<tr>
<td>6.1.1)</td>
<td>Interaction patterns of the groups...175</td>
</tr>
<tr>
<td>6.1.2)</td>
<td>Participants’ goals and their influence on interaction patterns (conversely, influences of interaction on participants’ goals)...178</td>
</tr>
<tr>
<td>6.1.3)</td>
<td>Factors that mediated participants’ collaboration...180</td>
</tr>
<tr>
<td>6.2)</td>
<td>Implications...191</td>
</tr>
<tr>
<td>6.2.1)</td>
<td>Theoretical implications...191</td>
</tr>
<tr>
<td>6.2.2)</td>
<td>Pedagogical implications...194</td>
</tr>
<tr>
<td>6.3)</td>
<td>Limitations and future research...196</td>
</tr>
<tr>
<td>Notes</td>
<td></td>
</tr>
<tr>
<td>References</td>
<td></td>
</tr>
<tr>
<td>Appendices</td>
<td></td>
</tr>
</tbody>
</table>
List of Tables

Table 2.1 ................................................................. 17  
Description of Four Patterns of Dyadic Interaction (Adapted from Storch, 2001) ......... 17
Table 3.1 ..................................................................... 32
Participants' Profiles ........................................................................ 32
Table 3.2 ..................................................................... 33
Descriptions of Writing Tasks ................................................................ 33
Table 3.3 ..................................................................... 34
Modes of Communication, Debate Dates, and Topics ................................. 34
Table 3.4 ..................................................................... 42
Research Questions and Corresponding Data for the Analyses ................. 42
Table 3.5 ..................................................................... 44
Types of Episodes (Storch, 2001, p.135) .................................................... 44
Table 4.1 ..................................................................... 51
Types of Episodes in the Current Study ..................................................... 51
Table 4.2 ..................................................................... 64
Episode Types and Frequency .................................................................. 64
Table 4.3 ..................................................................... 65
Number of Words in Writing, Turns, and Words Per Turn .......................... 65
Table 4.4 ..................................................................... 66
Decision-making Episodes: Agreement and Disagreement ....................... 66
Table 4.5 ..................................................................... 66
Initiation of Decision-making Episodes and Language Functions .............. 66
Table 4.6 ..................................................................... 68
Level of Engagement in the Resolution of Decision-making ...................... 68
Table 4.7 ..................................................................... 75
Participant's Goals on Writing Tasks .......................................................... 75
Table 4.8 ..................................................................... 83
Feedback on Each Other's Writing ............................................................ 83
Table 4.9 ..................................................................... 98
Three Domains and Sub-categories of Factors Mediating Collaborative Writing .......................................................................................... 98
Table 5.1 ................................................................... 100
Number of Words in Writing, Turns, and Words Per Turn (Group 2) .......... 100
Table 5.2 ................................................................... 101
Decision-making Episodes: Agreement and Disagreement (Group 2) .......... 101
Table 5.3 ................................................................... 102
Initiation of Decision-making Episodes and Language Functions (Group 2) .................................................................................. 102
Table 5.4 ................................................................... 103
Level of Engagement in the Resolution of Decision-making Episodes (Group 2) .................................................................................. 103
Table 5.5 ................................................................... 113
Number of Words in Writing, Turns, and Words Per Turn (Group 3) ........................................ 113
Table 5.6 ................................................................................................................................. 113
Decision-making Episodes: Agreement and Disagreement (Group 3) ................................. 113
Table 5.7 ................................................................................................................................. 113
Initiation of Decision-making Episodes and Language Functions (Group 3) ...................... 114
Table 5.8 ................................................................................................................................. 114
Level of Engagement in the Resolution of Decision-making Episodes (Group 3) ............ 114
Table 5.9 ................................................................................................................................. 123
Number of Words in Writing, Turns, and Words Per Turn (Group 4) ................................. 123
Table 5.10 ............................................................................................................................... 124
Decision-making Episodes: Agreement and Disagreement (Group 4) ............................... 124
Table 5.11 ............................................................................................................................... 124
Initiation of Decision-making Episodes and Language Functions (Group 4) ..................... 124
Table 5.12 ............................................................................................................................... 125
Level of Engagement in the Resolution of Decision-making Episodes (Group 4) .......... 125
Table 5.13 ............................................................................................................................... 136
Groups 2, 3, and 4 Participants’ Goals in Writing Tasks ...................................................... 136
Table 5.14 ............................................................................................................................... 140
Three Domains and Sub-categories of Factors Mediating Collaborative Writing from All Four Groups ......................................................................................................................... 140
Table 5.15 ............................................................................................................................... 168
Description of Patterns of Small Group interaction ............................................................. 168
Table 5.16 ............................................................................................................................... 169
Summary of Participants’ Goals, Goal-directed Actions, and Other Actions in the Collaborative Writing Activities ........................................................................................................................................ 169
List of Figures

*Figure 2.1.* Hierarchy of activity ........................................................................................................... 11
*Figure 2.2.* The structure of human activity system (Engeström, 1987/2015) ................................. 12
*Figure 2.3.* Storch’s pattern of dyadic interaction model .................................................................. 16
*Figure 3.1.* Data collection timeline ................................................................................................. 37
*Figure 3.2.* Screen shot of participants’ collaborative writing activity via voice-chat .................. 39
*Figure 4.1.* Interaction patterns of Group 1 ......................................................................................... 69
*Figure 4.2.* Group 1’s activity system of synchronous web-based collaborative summary writing  with mediating factors indicated in boldface .................................................................................. 87
*Figure 5.1.* Interaction patterns of Group 2 ......................................................................................... 103
*Figure 5.2.* Screenshot of Group 2’s Google Docs page (Task 3, voice-chat) ............................... 110
*Figure 5.3.* Interaction patterns of Group 3 ......................................................................................... 115
*Figure 5.4.* Interaction patterns of Group 4 ......................................................................................... 125
*Figure 6.1.* Basic mediated action triangle of synchronous web-based collaborative summary writing ........................................................................................................................................... 181
*Figure 6.2.* All groups’ mediational structure of synchronous web-based collaborative writing 185
List of Appendices

Appendix A: Survey Questionnaire 1 ........................................................................................................ 209
Appendix B: Survey Questionnaire 2 & 3 .................................................................................................. 211
Appendix C: Stimulated-recall interview protocol .................................................................................. 212
Appendix D: Transcription conventions ................................................................................................. 214
Appendix E: Information letter/consent form ........................................................................................... 216
Chapter 1: Introduction

Collaborative writing, defined as the coauthoring of a text by two or more writers (Storch, 2011), has become a common pedagogical activity in second-language (L2) classes, informed by sociocultural theory and supported by studies highlighting the importance of peer interaction in learners’ language development (Donato, 1994, 2004; Storch, 2002; Swain & Lapkin, 1998). By interacting with others, learners have opportunities to test their hypotheses about language (Swain, 1985) and pool their knowledge about both language and writing through collective scaffolding (Donato, 1994).

Prior collaborative writing studies have investigated how interaction patterns influence L2 learners’ writing performance and language learning in pair work in face-to-face interactions. Drawing on Damon and Phelps’ (1989) indices of mutuality and equality, Storch (2002) examined interaction patterns in pair work in a tertiary English as a second language (ESL) class. By setting up mutuality and equality along two axes, the four quadrants in Storch’s analytic framework defined four distinctive interaction patterns. Storch concluded that only the collaborative and expert/novice patterns were conducive to students’ language learning.

Adopting Storch’s interaction model, Watanabe (2008) investigated how peers’ language proficiency level influenced their interaction patterns, suggesting that both higher- and lower-proficiency peers could provide each other with learning opportunities if they shared ideas and contributed equally to tasks. Watanabe identified another interaction pattern she named the expert/passive pattern. This pattern of interaction differs from Storch’s expert/novice pattern in that the novice remains passive despite the expert encouraging the novice to participate.

With the potential of Web 2.0 tools such as wikis, blogs, and social networking sites for
L2 writing pedagogy (Storch, 2011), researchers have shown increasing attention to L2 learners’ web-based collaborative writing. Among these research areas, relatively few studies have investigated interaction patterns (Storch, 2013) in computer-mediated communication (CMC). Studies on interaction patterns have found evidence of collaborative patterns that are potentially conducive to language learning (e.g., Li & Zhu, 2013; Tan, Wigglesworth, & Storch, 2010). To facilitate and design web-based collaborative writing activity effectively, it is crucial to understand how learners interact during collaborative writing.

Similar to face-to-face interaction, not all pairs or groups work collaboratively when using Web 2.0 tools (e.g., Bradley, Linstrom, & Rystedt, 2010; Li & Zhu, 2013, 2017). Some studies reported less collaborative patterns specific to text-based CMC. For example, Tan, Wigglesworth, and Storch (2010) investigated the effects of modes of communication on the nature of pair interaction and found a cooperative pattern in which participants divide the workload of the joint writing task and have minimum interaction in the writing process. Li and Zhu (2013) investigated CMC interaction among college-level EFL students and found a dominant/withdrawn pattern similar to the dominant/passive pattern that Storch (2002) previously identified in face-to-face interaction. However, because the nature of CMC makes it possible for the passive participant to be absent or withdrawn, such a pattern may be more detrimental to students’ learning than in face-to-face interaction.

Despite findings that L2 learners’ interaction patterns vary when collaborating in pairs or small groups, few studies (e.g., Li & Zhu, 2017a; Storch, 2004) have investigated how and why this may be, both in face-to-face and in web-based settings. Storch (2004) argued that previous studies attempted to explain variations in interaction patterns based on personality differences (e.g., Villamil & de Guerrero, 1996) and differences in L2 proficiency (e.g., Kowal & Swain,
1994) but did not consider the factor of how students orient themselves to writing tasks. Storch used the lens of activity theory (Leont’ev, 2014) to show that participants’ goals and motives help explain interaction patterns in face-to-face collaborative writing for a university ESL class. She suggested that interaction patterns are influenced by the nature of learners’ goals and whether and how the group members’ goals are shared.

Li and Zhu's (2017a) study, which investigated patterns of interaction when groups of three ESL students worked on collaborative wiki writing tasks, identified three sociocultural factors (i.e., goals, agency, and emotion) that help explain variation in group interaction patterns. For example, they posited that the collective pattern involves convergent goals, collaborative agency, and positive emotion. Li and Zhu's study explained dynamics of interaction only in the asynchronous CMC context. Peer interaction in synchronous CMC contexts, however, has not been investigated sufficiently.

To address these research gaps, this study attempted to explain the causes of variation in interaction patterns during small-group web-based collaborative writing. Investigating such variations should have pedagogical implications for teachers who wish to implement web-based collaborative writing in their classroom activities. This study used two different synchronous modes of CMC (i.e., text-chat and voice-chat), which are relatively instant and so close to face-to-face interaction (Jepson, 2005) compared to asynchronous CMC. I wanted to see if these two different modes fostered different kinds of collaboration. I hypothesized that participants’ goals on the task and their goal-directed actions would influence their collaborations (Li & Zhu, 2017a; Storch, 2004). Whereas most of the prior collaborative writing studies looked at classroom contexts, where students’ goals may be influenced by pedagogical priorities and assessments, this study investigated ESL learners’ collaborative writing activity in a voluntary
situation outside of any classrooms, where learners could experiment and explore interacting and negotiating with each other to write a collaborative debate summary. To address the general research question guiding this thesis—what factors mediate the ways in which L2 learners carry out web-based collaborative summary writing?—three specific research questions were generated:

1. What interaction patterns occur when groups of three L2 English writers engage in synchronous web-based collaborative writing tasks?

2. To what extent and how do individuals’ goals influence group interactions and, conversely, how do group interactions influence individuals’ goals?
   a) What goals do participants have for the collaborative summary tasks?
   b) What do they do to achieve their goals?
   c) How do individual’s attempts to achieve their goals affect group interactions?

3. In addition to goals, what other factors influence peer interaction in web-based collaborative writing?

   To investigate these questions, patterns of group interaction were identified by employing Storch’s (2002) dyadic interaction model analyzing collaborative debate summaries, transcripts of screen recordings, and stimulated-recall interviews. A survey questionnaire elicited the learners’ background information and individual goals for the writing tasks. Activity theory was used to examine the influence of participants’ goals and goal-directed actions on group interactions as well as how group interactions influenced participants’ goals and goal-directed actions. Guided by Engeström’s activity model (1987/2015), factors that mediated participants’ collaboration were identified in web-based collaborative writing activity.
By investigating peer interactions in the context of synchronous web-based collaborative writing and factors mediating small group collaboration, this study contributes to an understanding of how collaborative writing may operate and why collective performance varies by group. The majority of prior studies of collaborative writing looked at pair interactions, but few studies have investigated small groups. Small group work provides ESL learners more resources to draw on and facilitates more LREs compared to pair work (Fernández Dobao, 2012). The occurrence of ‘free riders’ may decrease in small groups compared to tasks in large groups (Li, 2013).

Also, this study extends earlier research (e.g., Blin & Appel, 2011; Storch, 2004) examining the factors that mediate students’ collaboration by drawing on the second generation model of activity theory. The findings of this study help explain why collaborative performance varies and provide insights into how web-based collaborative writing activities can be designed and facilitated in L2 classes.

This thesis is organized into six chapters. In Chapter 2, I describe the theories relevant to this study and review previous literature on collaborative writing. In Chapter 3, I outline the design and methodology for this study describing the: (1) research site and participants, (2) writing tasks and tools, (3) data collection procedures, (4) methods of data analysis, and (5) reliability and credibility of the analysis. Chapter 4 reports the focal group selection for this study and findings for the focal group. Chapter 5 reports the findings of the remaining three groups guided by the findings of the focal group. In Chapter 6, I conclude the thesis by summarizing trends from the findings for each research question and discussing them in light of relevant prior research. To conclude, I present the theoretical and pedagogical implications of the findings, limitations of the study, and suggestions for future research.
Chapter 2: Review of Relevant Theories and Research

First in this chapter, I discuss sociocultural theory, learners’ goals, and activity theory that are the basis for the present study. I then review empirical studies on web-based collaborative writing focusing on interactions and group dynamics.

2.1) Theoretical orientations: Sociocultural theory and activity theory

2.1.1) Sociocultural views of learning in L2

The use of pair or group work in L2 classes is informed by sociocultural theory that considers human development to be socially situated (Vygotsky, 1978, 1987). According to Vygotsky, all higher mental processes (cognition) develop and function through mediation with other people, ideas, and language. In a context of first language acquisition, the cognitive and linguistic development of a child (a novice) occurs by interacting with adults (or other more mature experts); the adult provides appropriate assistance to the child. This assistance is referred to as scaffolding that enables children to perform a task that they might not previously have been able to do by themselves. Many studies of second language acquisition (SLA), however, have extended this definition of scaffolding by experts (e.g., a teacher) to include other novice peers when they are working in groups or pairs collaboratively. In this situation, expertise is fluid (Ohta, 2001) or shared by students because they pool their knowledge about language to complete their tasks. Donato (1994) defined such scaffolding observed in an L2 context as collective scaffolding.
2.1.1.1) Output hypothesis

The use of writing activities in pair or group work has become common following studies that emphasize the importance of peer interaction and collaboration such as Swain’s work on the output hypothesis (Swain, 1985, 1993, 1995) highlighting the importance of language output (i.e., speaking or writing) for L2 development (Storch, 2011). Whereas Krashen (1989) considered the role of output for language acquisition as simply generating supplementary comprehensible input, Swain (1985, 1993, 1995) emphasized the independent functions of comprehensible output in SLA.

Swain (1985) argued that comprehensible output provides learners with opportunities (a) to make “meaningful use of [their] linguistic resources (p.248)”; (b) “to test out hypotheses about the target language” (p.252); and (c) “to move the learner from a purely semantic analysis of the language to a syntactic analysis of it” (p.252). Learners are encouraged to process language more deeply with mental efforts when they are speaking or writing (output) than when they are listening and reading (input). By producing output, learners are able to experiment with their linguistic resources to meet communicative goals and discover what they can and cannot do. Output may also stimulate learners to move to complete grammatical processing required for accurate language production from semantic, open-ended strategic processing (Swain, 2000).

Even though Swain mentioned both oral and written output, written output may push students more to process language deeply, to notice gaps in their interlanguage, and to reflect on their language use (Storch, 2011). Compared to speaking, writing is less ephemeral in nature, because it involves the production of fixed and stable written texts. When learners engage in a writing task they can take more time to think, test their hypotheses, and reflect on their language use.
**2.1.1.2) Collaborative dialogue and languaging**

Swain’s work on collaborative dialogue (Swain, 2000) and languaging (Swain, 2006, 2010), informed by Vygotsky’s sociocultural theory, further discussed the potentials of collaborative writing. Collaborative dialogue is defined as “a dialogue in which speakers are engaged in problem solving and knowledge building” (Swain, 2000, p.102). Swain and Lapkin (1998) looked at a dialogue between two 8th-grade French immersion students while they engaged in a jigsaw-writing task to examine dialogue as communication and cognitive tools. The researchers used the language related episode (LRE) as a unit of analysis in interpreting the collaborative dialogue that students produced and used. LREs refer to any segment of participants’ interaction focus explicitly on language (Swain & Lapkin, 1995). Kowal and Swain (1994) identified three principal categories of LREs: meaning-based, grammatical, and orthographic LREs. Their research findings suggested that through collaborative dialogues, students were able to solve some linguistic problems by talking-it-through (Swain & Lapkin, 2001).

Swain (2006) acknowledged that she had been searching for a word that could allow “the image of language as an activity” (p.95) to replace ‘output,’ which depicts “language as a conveyer of a fixed message” (p.95). She coined the term languaging to refer to the process of “producing language, and, in particular, producing language in an attempt to understand – to problem-solve – to make meaning” (Swain, 2006 p.96). When students are writing collaboratively with their partner or group members, they are languaging about writing; languaging helps students to articulate their thoughts. According to Storch (2011), collaborative writing is beneficial because it transforms languaging to other-directed talk that becomes a
mediating artifact with the potential for reflection or analysis. Whereas languaging in individual writing may take the form of self-directed talk (private speech) that stays subvocal (thinking), the verbal artifact created through other-directed talk may further mediate people’s thinking and writing processes (Swain, 2006).

2.1.2) Learners’ goals

Theories and research highlighting the importance of goals in human learning have their foundation and tradition in educational psychology (Cumming, 2006). According to Locke and Latham (1990) and Midgely (2002), goal setting is a focal component of learning and motivation in academic or work settings. Midgely (2002) argued that rather than assuming learners possess or lack motivation, the focus should be in how they interpret and react to events. Other educational psychologists (e.g., Pintrich, 2000; Zimmerman, 2001) have considered goals as an integral element of self-regulated learning. Learners’ cognition, motivation and behavior are monitored, guided and controlled by their goals.

In the early 2000s, Cumming, Busch, and Zhou (2002) brought this theory into the field of L2 writing to try to establish a better understanding of ESL learners’ goals on their writing improvement. They conducted a series of studies on L2 writing goals and motivation (see Cumming, 2006). The participants were ESL learners who aimed to enter a university after their ESL courses. Cumming and his colleagues employed longitudinal data in university contexts, over a pre-university ESL course and the subsequent year when the participants started their university courses. By analyzing emerging themes of learners’ goals for L2 writing from qualitative data (e.g., students’ expressed goals and their writing samples), they established a descriptive framework about goals for the writing improvement of adult L2 writers. Their
research findings suggested that goals for writing development depend on social, educational and learning factors. For example, goals for L2 writing differ between visiting international students preparing for university entrance and local adolescent students at risk for literacy development (Cumming, 2012). Also, within the same groups, learners may have different goals.

Cumming (2012) argued that learners’ goals emerge from a “convergence of students’ development with relevant opportunities for learning and instruction” (p.153), observing that “goals follow from but also determine development” (p.153). Variables such as personal history and socio-linguistic contexts interact with learners’ goal setting. Consequently, goals cannot be predicted in advance. Also, reference to the goals of learners is necessary to be able to analyze and understand their strategies for performing tasks.

2.1.3) Activity theory

Activity theory emerged from Vygotsky (1987)’s concept in the 1920s and early 1930s of mediation as actions taken to achieve desired outcomes via psychological or material tools. As Swain, Kinnear and Steinman (2011, p. 97) put it, “Activity theory conceptualizes human cognition in relation to human physically and socially motivated activities.” The original theory was further developed by Leont’ev (1978) and Engeström (1999, 1987/2015).

Leont’ev’s activity theory emphasized individuals’ goals, motives, and the connections between motives and behaviors while acknowledging the social nature of activity (Kaptelinin, 2005). He defined the level of activity (i.e., activity, action, and operation, see Figure 2.1) in an attempt to strengthen the analytic power of the theory (Lantolf & Thorne, 2006) by looking at the same activity with different analytical perspectives (Wells, 1999). An activity is driven by an object-related motive while an action instantiates the motives by orienting towards a goal which
is an object of the action by an individual or group. Goal-directed actions are realized by operations that are “automatized or habituated actions that respond to the immediate social-material conditions at hand” (Lantolf & Thorne, 2006, p. 216).

<table>
<thead>
<tr>
<th>Level</th>
<th>Oriented towards</th>
<th>Carried out by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity</td>
<td>Motive/ object</td>
<td>Community</td>
</tr>
<tr>
<td>Action</td>
<td>Goal</td>
<td>Individual/ Group</td>
</tr>
<tr>
<td>Operation</td>
<td>Condition(s)</td>
<td>Individual</td>
</tr>
</tbody>
</table>

*Figure 2.1. Hierarchy of activity*

For instance, in Leont’ev’s famous hunting example (1959/1981, as cited in Kaptelinin, 2005), he explained the participation of an individual in a primeval collective hunting group. This collective hunting activity was motivated by hunger, which is a biological need. To satisfy this need, each participant in the hunting takes an action that is goal-directed (in this case, getting food). For example, a beater ambushes and makes animals run away from him toward the hunters. Then, the hunters kill the animals. Although a hunting activity itself was a collective activity, Leont’ev’s demonstrated how a division of labor induced a difference between what motivates a person (i.e., food) and the activity to which a person’s actions are directed (i.e., making animals run away). The participants of the hunting activity took different actions based on their goal for their respective roles in the hunt. The goals are conscious (Wells, 1999) and intentional (Storch, 2014) whereas their motives may be unconscious (Lantolf & Thorne, 2006). Therefore, examining participants’ goals is crucial to understand participants’ variation in performance in an activity (Donato, 1988; Gillette, 1994; Storch, 2004).

Engeström (1987/2015) expanded Leont’ev’s concepts of collective activity by shifting the focus from activities taking place at the individual level to human behaviours in collective
activity systems (Kaptelinin, 2005). Activity is shaped by interplay between subjects and objects and mediated by instruments. Engeström (1987/2015) introduced the third component of the interaction, community, to describe a three-way interaction among subjects, object, and community (see Figure 2.2). People who share the same general object constitute a community. “Social mediators” (Engeström, 2008) including rules and division of labor also mediate activity. (Formal or informal) rules regulate and guide the subject’s actions and interactions within an activity system. Division of labor refers to how the tasks are shared in the community. Engeström argued that continuous construction is ongoing among components of an activity system. By reciprocally and dynamically influencing one another the components of an activity system reconstruct themselves. As shown in Figure 2.2, an activity model is usually represented as a triangular diagram describing the relationship between the components.

![Figure 2.2 The structure of human activity system (Engeström, 1987/2015)](image)

Further Engeström (1999) developed the theory by seeing a joint activity as the unit of analysis but not an individual activity. He looked at the process of social transformation and
included the structure of the social world in his analysis considering the conflictual nature of social practices. For the present study, I utilized Leont’ev’s activity theory and Engeström’s expansion of Leont’ev’s concepts which focus on human behaviour in collective activities.

Approaches to understanding writing through a lens of activity theory, emerging recently in the field of second language writing, are not completely new. In first language composition studies, researchers inspired by early works of scholars such as Bazerman (1985, 1988, 1994) have been investigating writing from an activity systems perspective for three decades. Beach, Newell, and Van Der Heide (2015) and Russell (2010) have used the terms of activity theory to describe writing practices in different settings. They argued that the norms, roles, senses of community and audience, systems of activities, divisions of labor, mediating processes, and outcomes in purposeful group collaborations differ fundamentally from conventional, educational conceptualizations of writing by individual students for their teachers. Directing communication and learning needs at specific goals creates motives, which are realized through goal-directed actions, such as those involved in the object-oriented activities of writing, including writing, revising, and talking (Lantolf, 2000; Leont’ev, 2014; Yamagata-Lynch, 2010).

In collaborative writing, these actions necessarily combine collaborative and individual motives and consequences, providing indications and possible explanations for why collaborative performance is varied and may produce different learning outcomes for different people. For example, in an empirical study of university ESL learners’ face-to-face collaborative writing, Storch (2004) examined how convergent or divergent goal orientations influenced dyadic interaction utilizing activity theory. By analyzing participants’ interview data on their perceived goals and roles on a collaborative writing task, she found that participants’ goal
orientations influenced their interaction patterns. For instance, the collaborative pair shared their goals and tried their best to complete the task together while the dominant/dominant pair’s overriding goal, which was to display their knowledge, was competing rather than shared or complementary.

In a computer-mediated communication (CMC) context, Blin and Appel (2011) investigated how EFL learners establish and develop collaborative writing practices by employing cultural-historical activity theory. Based on Engeström’s specification of modes of interaction (2008) (i.e., coordination, cooperation, and reflective communication), they identified interaction modes and how they varied. In a coordination mode, actors focus on successful performance of the assigned tasks. In a cooperation mode, actors focus on shared goals, while actors reflect on their organization and interaction regarding their shared goals in reflective communication mode. Although a guideline outlining the procedure of the writing activity was provided, there were variations regarding procedures of the task among groups because they tried to co-construct the meaning of the task. These attempts also affected the modes of interaction. The researchers suggested that although the coordination mode still benefits some learners’ language development, further achievement of learning outcomes could be constrained without transitioning to cooperation and/or the reflective mode of communication.

2.2) Previous research on collaborative writing

2.2.1) Collaborative writing in L1

Collaborative writing is defined as coauthoring a text by two or more writers in collaboration (Ede & Lunsford, 1990; Storch, 2011). It may include written and spoken brainstorming, outlining, drafting, revising, editing, and publishing. Collaborative writing is
distinguished from group planning or peer-feedback because the latter involve only partial collaboration during the processes of writing (Storch, 2011).

Different from the traditional view of writing, which considers writing as an individual and private activity (Bruffee, 1983), in the practice of collaborative writing, researchers consider writing to be “embedded in social interaction” (Murphy, 1994, p.199) and that “[writing] is shaped by the expectations and demands of its intended community of readers” (Hirvela, 1999, p.8). According to Bruffee (1985), who adapted the principles of collaborative learning theory to L1 writing instruction, collaborative learning can be defined as “gain[ing] certain kinds of knowledge best through a process of communication with our peers” (p.103).

Some L1 composition scholars (e.g., Daiute, 1986; Wells, Chang, & Maher, 1990) have argued that learners should collaborate throughout the writing process. Such collaboration promotes a sense of co-authorship, and students can contribute collectively more to all aspects of writing such as content, rhetorical structure, and language (Storch, 2005). Bruffee (1993) suggested that collaborative writing fosters reflective thinking when students engage in an activity to define and explain their ideas. Also, collaborative writing helps students to have a greater awareness and understanding of potential audience concerns about a written text.

2.2.2) Collaborative writing in L2

Studies on L2 collaborative writing have also suggested the potential for positive effects on learning, including awareness of audience (Leki, 1993). The potential benefits of collaborative writing in L2 have been enumerated as follows: (a) it promotes greater complexity and quality of writing (Sotillo, 2002; Storch, 2005), (b) it helps students to focus on not only grammar and lexis but also discourse structure (Kessler et al., 2012; Storch & Wigglesworth,
2007; Swain & Lapkin, 1998), and (c) students can pool their knowledge about language through collective scaffolding (Donato, 1994; Storch, 2005; Storch & Wigglesworth, 2007) in the process of writing.

With a lens of sociocultural theory some studies have investigated interaction patterns of pairs/groups and how these patterns influence L2 learners’ writing performance and language learning. Drawing on Damon and Phelps’ (1989) indices of mutuality and equality Storch (2002) examined interaction patterns in pair work in a tertiary English as second language (ESL) class. Mutuality refers to the level of the engagement with each other’s contribution and equality refers to the degree of control or authority over the task. By setting up mutuality and equality along two axes, the four quadrants in Storch’s analytic framework defined four distinctive interaction patterns as shown in Figure 2.3: collaborative, dominant/dominant, dominant/passive, and expert/novice. Table 2.1 describes four patterns of dyadic interaction.

![Storch's pattern of dyadic interaction model](image-url)
Table 2.1

Description of Four Patterns of Dyadic Interaction (Adapted from Storch, 2001)

<table>
<thead>
<tr>
<th>Interactional patterns</th>
<th>Characteristics of interaction</th>
</tr>
</thead>
</table>
| Collaborative               | - A pair works together on all parts of the task  
- A pair willing to offer and engage with each other’s idea |
| Dominant/Dominant           | - There is unwillingness or inability to fully engage with each other’s contributions          |
| Dominant/Passive            | - The dominant participant takes an authoritarian stance and seems to appropriate the task  
- There is little negotiation between the participants |
| Expert/Novice               | - The dominant participant acts as an expert who actively encourages the other participant (novice) to participate in the task |

Storch also investigated the links between the patterns of interaction and the participants’ language development using process-product research designs (Donato, 1988; Putney, Green, Dixon, Duran, & Yeager, 2000). She identified LREs (Swain & Lapkin, 1998) from pair-talk data and considered them to be learning opportunities for the participants. Then, she examined the evidence for the take-up of these learning opportunities by giving students individual writing tasks that were similar to the pair writing tasks. Three instances of students’ knowledge transfer from pair work to individual performance were recognized: instances suggesting a transfer of knowledge, instances showing no transfer of knowledge, and instances suggesting missed opportunities. Storch concluded that only the collaborative and expert/novice patterns were conducive to students’ language learning.

Adopting Storch’s interaction model, Watanabe (2008) investigated how peers’ language proficiency level influenced their interaction patterns, suggesting that both higher and lower-proficiency peers could provide each other with learning opportunities if they take a collaborative stance and contribute equally to tasks. She identified another interaction pattern, called expert/passive. This differs from Storch’s expert/novice pattern in that the novice remains...
passive despite the expert encouraging the novice to participate.

2.2.3) Web-based L2 collaborative writing

2.2.3.1) Main strands of computer-mediated collaborative writing

With the potentials of Web 2.0 tools—such as wikis, blogs, and social networks—for L2 writing pedagogy, web-based collaborative writing has been getting increasing amount of attention from researchers (Storch, 2011). To date, studies of web-based collaborative L2 writing have focused on four main areas: (a) learners’ perceptions of online collaboration (e.g., Arnold, Ducate & Kost, 2009; Ducate, Lomicka, & Moreno, 2011; Kost, 2011; Lee, 2010; Miyazoe & Anderson, 2010; Strobl, 2014), (b) processes of writing (e.g., Elola & Oskoz, 2010; Mak & Coniam, 2008; Kessler, 2009; Kessler, Bikowski, & Boggs, 2012; Kost, 2011; Lund, 2008) (c) writing products (e.g., Arnold et al., 2009; Ducate et al., 2011; Elola & Oskoz, 2010; Kessler, 2009; Kessler et al., 2012; Kost, 2011; Kuteeva, 2011; Mak & Coniam, 2008; Lee, 2010; Li & Zhu, 2017b; Oskoz & Elola, 2013; Strobl, 2014); and (d) interaction patterns (e.g., Bradley et al., 2010; Kost, 2011; Li & Kim, 2016; Li & Zhu, 2013, 2017a; Rouhshad & Storch, 2016; Tan et al., 2010).

a) Studies focusing on learners’ perceptions of online collaboration

The most well-researched area in web-based collaborative writing is L2 learners’ perceptions of online collaboration (Storch, 2013). Most studies in this category have reported that participants had positive attitudes toward web-based collaborative writing due to the novelty of the technology (e.g., Ducate et al., 2011; Lee, 2010; Kost, 2011; Miyazoe & Anderson, 2010). For example, Lee (2010) reported that the participants in her study were extremely satisfied with the wiki collaborative writing activities and they found it authentic and engaging. Also, in
investigating wiki projects of college-level German learners, Kost (2011) reported that her participants perceived collaborative writing activities as positive and useful language learning experiences. The participants appreciated time-independent and shared workloads along with opportunities to pool knowledge of subject matter and language between the partners by interacting with each other.

Even though the majority of learners studied had positive attitudes toward collaborative wiki writing activities, it should also be noted that some participants preferred to work on their own if they had a choice (e.g., Ducate et al., 2011; Lee, 2010). Preference to work individually was prompted by unequal and untimely contributions from the partner or other group members (Arnold et al., 2009; Ducate et al., 2011; Lee, 2010; Storch 2013; Strobl, 2014) during wiki writing. For example, Strobl (2014) examined the collaborative writing of advanced German learners and found from qualitative data that one of the groups failed to collaborate because of some free riders.

b) Studies focusing on processes of web-based collaborative writing

To investigate the nature of collaborative writing, studies of collaborative writing processes have explored the nature of group work and how participants carry on online collaborative tasks. For instance, Kost (2011) found that students used various strategies in the process of writing to carry out the wiki projects. Most pairs created an additional wiki page to brainstorm and outline their writing on a wiki in the pre-writing stage. Similarly, Kessler et al.’s (2012) participants used web-based word processing tools simultaneously for different purposes such as outlining the collaborative texts before drafting.

Elola and Oskoz (2010) reported on participants’ approaches to individual and pair writing tasks by analyzing wiki logs of advanced Spanish learners. When they wrote with their
partner, learners tended to outline the essay first and then revised the essay throughout the writing process whereas when they worked individually the structure of the essay changed throughout the composing process and editing was done only in the final stage. By examining wiki collaborative writings of EFL secondary students, Lund (2008) observed a shift in students’ perspectives through wiki collaborative writing from traditional individualism to collective knowledge construction and ownership. He emphasized that wikis can be a tool to support collective language learning and development.

When L2 learners engage in web-based collaborative writing, they tend to focus more on meaning than on language form (e.g., Kessler, 2009; Kessler et al., 2012; Mak & Coniam, 2008). For instance, while investigating EFL writers’ wiki writing activity Kessler (2009) reported that the participants did not pay much attention to language form issues although they were confident to giving each other feedback and capable of correcting grammatical errors. As a matter of fact, students were explicitly encouraged to pay attention to language forms. During the post-task interviews, it was found that the participants did not address language form issues unless they disrupted understanding of the text.

c) Studies focusing on online-based collaborative writing products

To examine how collaborative writing activities are conducive to language learning, some studies investigated features of collaborative writing products and their quality. Regarding features of web-based collaborative writing, some studies reported that participants tend to produce more complex (e.g., Mak & Coniam, 2008) and coherent sentences (e.g., Kuteeva, 2011) compared to their individual writing. For example, Mak and Coniam (2008) investigated features of collaborative texts by looking at a wiki writing project done by secondary ESL learners in Hong Kong. They found that students produced longer and more complex sentences
in wiki writing compared to their individual writing assignments. In the same vein, Kuteeva (2011) investigated discourse features of wiki-based collaborative writing in a college-level English for academic purposes (EAP) course. The findings of the study suggested that wiki writing activities promoted students’ awareness of the audience, resulting in students paying close attention to grammatical correctness and structural coherence.

Some studies (e.g., Elola & Oskoz, 2010; Strobl, 2014) found no statistically significant differences between individual and collaborative texts in terms of accuracy, fluency, and complexity. However, further qualitative analysis revealed that the participants approached individual and collaborative writing differently (Elola & Oskoz, 2010). Collaborative texts were evaluated better than individual texts regarding selecting appropriate sources and organization (Strobl, 2014).

Studies examining the accuracy of collaborative texts and their results have produced mixed outcomes. Some studies (e.g., Arnold et al., 2009; Kost, 2011 Kuteeva, 2011; Lee, 2010) reported that collaborative text was more grammatically accurate than text written by an individual. Arnold et al. (2009) reported that their participants edited the wiki writing to correct lexical and grammatical errors and most of the time the errors were corrected properly. Looking at the wiki collaborative writing of Spanish learners, Lee (2010) also observed that her participants had become engaged more in revision activities as the semester proceeded and most of the corrections they made were correct.

On the other hand, some studies (e.g., Elola & Oskoz, 2010; Mak & Coniam, 2008; Kessler, 2009; Kessler et al., 2012) claimed that grammatical errors were overlooked. For example, Kessler et al. (2012) observed that participants focused more on meaning than on language forms in their examining advanced ESL writers’ collaborative texts composed via
Google Docs. Little attention was paid to language forms and most of it focused on spelling and punctuation rather than grammatical structures such as verb tenses. Participants in these studies tended to pay more attention to meaning than language form because they may understand collaborative writing activities as meaning focused activities as Kessler’s (2009) participants stated (in the previous section). Some participants may not feel comfortable or confident to correct peer’s work resulting in their working cooperatively (i.e., writing their own share of writing and editing their own writing) rather than collaboratively (i.e., giving each other feedback and editing others’ work). For example, Ducate et al. (2011) reported that their participants were not comfortable correcting their peer’s writing until they received a teacher’s guidance on editing and peer interaction.

Few studies have investigated the possible link between peer interaction and collaborative texts (e.g., Li & Zhu, 2017b; Oskoz & Elola, 2013) in CMC contexts. Oskoz and Elola (2013) investigated the link between a pair of L2 Spanish learners’ discussion board interactions and their wiki collaborative writing. The researchers found that learners’ discussions regarding content, organization, and language indeed were incorporated in the final essay. Although the participants reported that collaborative writing activity was beneficial, this study did not focus on interaction patterns, and the quality of the writing was not evaluated.

On the other hand, Li and Zhu (2017b) investigated the quality of collaborative texts in relation to peer interaction during wiki writing by looking at small groups of L2 writers in an EAP context. They examined collaborative texts based on overall rhetorical structure, coherence, and accuracy. The findings suggested that collaborative groups (i.e., collaborative and expert/novice patterns) tended to produce higher quality collaborative texts in terms of rhetorical structure and coherence than did non-collaborative groups (i.e., dominant/defensive and
cooperating-in-parallel patterns). Studies focusing on such interaction patterns, which are one of the focuses of the current study, will be discussed in detail in the following section.

2.2.3.2) Patterns of interaction in computer-mediated collaborative writing

Recently, there has been a growing interest in interaction patterns in the context of CMC, though relatively few studies have been conducted in this area (Storch, 2013). CMC is classified into two types: asynchronous (e.g., email, wiki, and blog) and synchronous (e.g., MSN messenger and Skype) interactions. To engage in asynchronous interactions, students participate thorough networked computers by using email, blogs, or online discussion forums (Hyland, 2003). In synchronous interaction, all participants are online at the same time via online chat-rooms, instant messaging programs, Internet Relay Chat, or discussion software on area networks (Bloch, 2008).

Computer-mediated interactions have been found to prompt collaboration and are therefore potentially conducive to language learning (e.g., Li & Zhu, 2013; Tan et al., 2010). However, similar to face-to-face interaction, it has also been found that not all pair or group work collaboratively via Web 2.0 tools and variations of pattern of interaction (e.g., Bradley et al., 2010; Li & Zhu, 2013, 2017a, 2017b).

Mostly, studies investigating learners’ interaction in CMC (e.g., Hamano-Bunce, 2011; Jepson, 2005; Loewen & Wolff, 2016; Rouhshad, Wigglesworth, & Storch, 2016; Rouhshad & Storch, 2016) compared different communication modes and examined how interaction patterns were influenced by the different modes. Most of the studies reported less collaborative interaction patterns specific to text-based synchronous computer-mediated communication (SCMC). For example, Rouhshad and Storch (2016) compared a face-to-face and a text-based
SCMC (i.e., Google Docs and its built-in text-chat). Their findings suggested that the modes of communication influenced the interaction pattern and students’ attention to language. The participants tended to interact collaboratively in face-to-face mode while they tended to work cooperatively (or dominant/passive) in SCMC mode. In the same vein, Hamano-Bunce (2011) reported that fewer LREs were found in text-chat than in face-to-face interaction in comparing two pairs of EFL learners.

Some studies investigating online collaborative writing found some unique interactions to asynchronous CMC interaction caused by its time lags compared to synchronous counterparts. For example, Tan et al. (2010) investigated interaction patterns of students in a beginner-level Chinese class by comparing face-to-face and delayed text-based interaction (i.e., the participants used MSN messenger asynchronously). They found the pattern of interaction called cooperative in text-chat interaction, akin to the category of dominant/dominant. In delayed text-based interaction, the students may not have needed to engage in intensive verbal interaction as they would in face-to-face talk since they could work on their own sentences and have minimum interaction with their partners. Similarly, Li and Zhu (2013) investigated the nature of college-level EFL students in China’s collaborative writing using a wiki platform. The researchers found a dominant/withdrawn pattern equivalent to the dominant/passive pattern in face-to-face interaction. They explained that the nature of asynchronous CMC allowed students to delay their responses (or not to respond) and made it possible for the passive participant to be absent and withdrawn.

Some other studies (e.g., Loewen & Wolff, 2016; Jepson, 2005; Yanguas, 2010) compared face-to-face to multiple SCMC modes such as text, voice, and video-chats. Jepson (2005) and Loewen and Wolff (2016) compared text and voice-chat interactions and found that
voice-chat tended to facilitate more collaboration than did text-chat. Jepson (2005) found that more repair moves were elicited in voice-chat than in text-chat although most of the moves were repair of pronunciation. Also, Loewen and Wolff (2016) reported that face-to-face and voice-chat interactions were similar regarding a greater number of LREs and confirmation checks, which indicated higher degrees of interaction, whereas text-chat promoted fewer of them. Yanguas (2010) compared face-to-face and oral SCMC (i.e., audio and video-chats) interactions when learners of Spanish engaged in a jigsaw task. He found that differences between audio and video interaction arose mostly because of the lack of visual contact in voice-chat groups. He also reported that the pattern of turn-taking in oral SCMC was similar to that of face-to-face interaction, and there were no differences found between face-to-face and video-chat interactions.

Despite findings that L2 learners’ interaction patterns vary in their collaborations in pair or group, and few studies reported that the different modes of communication are one of several mediating factors, still a handful of studies (e.g., Storch, 2004; Li & Kim, 2016; Li & Zhu, 2017a) have considered how and why this may be. Examining what influences learners’ interaction in computer-mediated collaborative writing is crucial because it offers us insights into how web-based collaborative writing activities can be designed and facilitated in L2 classes (Storch, 2013).

According to Storch (2004), previous studies attempted to explain variations in students’ interaction patterns based on personality differences (e.g., Villamil & de Guerrero, 1996), differences in L2 proficiency (e.g., Kowal & Swain, 1994), classroom ideology (e.g., DiNitto, 2000), or factors related to learners’ learning history and culture (e.g., Lockhart & Ng, 1995). However, these researchers did not consider how learners orient themselves to writing tasks (i.e.,
their goals and motives on the tasks) nor how collaborative writing activities are shaped and mediated by instruments and “social mediators” (Engeström, 2008) such as rules, community and division of labor.

Guided by activity theory (Leont’ev, 2014; Vygotsky, 1981), Storch (2004) investigated what influenced the pattern of interaction among eight participants who formed four case study pairs (collaborative, dominant/dominant, dominant/passive, and expert/novice patterns) in face-to-face interaction. The findings of her study suggested that the participants’ situation definition (Wertsch, 1985, 1991), specifically their perceived goals and roles, determined how they carried out the collaborative writing tasks. Using pair work in a language class was helpful for the students only when pairs’ goals of the tasks were shared or complementary and they were focused on learning processes rather than performance. Further, Storch addressed the importance of affective factors such as participants’ attitudes to task and pair work to understand learners’ actions in collaborative writing activities.

Some CMC studies also investigated factors that influence pair/group interaction during collaborative writing activities. For example, Li and Kim (2016) examined in depth the nature of interaction in two groups of ESL writer’s wiki collaboration. Analyzing language functions, writing change functions, scaffolding strategies, and changes in interaction patterns, they found that learners interacted differently in relation to their attitudes and preferences during the collaborative writing activities. These findings align with Storch’s (2004) findings regarding the importance of affective factors to explain how and why participants act in a certain way in group/pair work.

Most recently, Li and Zhu (2017a) investigated patterns of interaction when ESL students worked on collaborative wiki writing tasks. Using the lens of a sociocultural theory, they
identified three sociocultural factors (i.e., dynamic goals, flexible agency, and socially constructed emotion) that helped to explain variations in interaction patterns. For example, the collective pattern involved convergent goals, collaborative agency, and positive emotions whereas dominant/defensive pattern involved divergent goals, individual agency, and negative emotions.

Although there have been studies investigating factors influencing learners’ collaborations, more extensive research is needed to better understand the learners and their activities and to design more beneficial collaborative writing activities (Storch, 2013). SCMC collaborative writing activities may offer various kinds of benefits to students’ language learning and development because web-based writing platforms (e.g., wikis and Google Docs) enable learners to write simultaneously with their partner or group members (Li & Zhu, 2013; Kessler et al., 2012) and utilize other online tools such as online dictionaries, spell checkers, and corpora (as writing resources).

2.4) Summary of literature review

In Chapter 2, sociocultural theory and activity theory were presented as the theoretical orientations of the current study. Collaborative writing was defined and the affordances it has brought to L2 writing contexts and learning were explained. Collaborative writing studies in face-to-face context were briefly reviewed. Four main research strands in web-based collaborative writing were identified: (a) learners’ perceptions of web-based collaborative writing, (b) processes of writing, (c) writing products, and (d) patterns of interaction.

Most of the participants in the studies reviewed seemed to be in favor of doing web-based collaborative writing; however, some participants still preferred to work individually due to unequal and untimely contributions from their partners or group members. The learners
approached individual and collaborative writing differently in terms of organizing and editing their writing. Some studies reported that collaborative texts were more complex and accurate than were individual texts while other studies found no significant differences between them in terms of complexity, accuracy, and fluency. Most of the studies looking at SCMC interaction reported less collaborative interaction patterns specific to text-based SCMC, and some studies found interaction patterns that were unique to the text-based SCMC mode such as cooperative (Tan et al., 2010) and dominant/withdrawn patterns (Li & Zhu, 2013). Also, studies comparing among face-to-face and other modes of SCMC (i.e., text, voice, and video-chats) found that face-to-face and voice/video-chats promoted more interactions than did text-chat.

Despite findings that L2 learners’ interaction patterns vary in their collaborations in pairs or groups few studies (Storch, 2004; Li & Kim, 2016; Li & Zhu, 2017a) have investigated how and why this may be in both face-to-face and SCMC contexts. Storch (2004), Li and Kim (2016) and Li and Zhu (2017a) reported that participants’ situation definition (e.g., goals, roles) and affective factors (e.g., attitude and preference toward group/pair work) influenced the interaction patterns. More studies are needed to explore the causes of variation in web-based collaborative writing activity to help understand learners’ attitudes, orientations, and actions and to design effective writing activities for pedagogical purposes.
Chapter 3: Methods

In this chapter, I outline the context, methods, and analytic tools used in this study. I first describe the research site and participants, followed by the data collection tools and procedures. I then describe the analytical tools and the reliability and credibility of this study.

3.1) Research site and participants

3.1.1) English Debate Club

Participants were recruited from an English Debate Club that I had been co-facilitating at a Canadian university for two years. They voluntarily met once a week to practice English communication skills through debates. The members of the club were mostly study-abroad ESL learners (some of them held working holiday visas and worked part-time) from Asia, including Japan, Korea, and Taiwan. I assumed the participants to be highly motivated ESL learners as participation in the debate meetings was purely voluntary. They seemed to recognize my role in the club as a facilitator of debates and advanced peer (like a tutor) who could help them with debate topics and the English language.

The club had a Facebook page where the members posted announcements and links that are relevant to the debate meetings. Weekly advertisements in online communities for international students (e.g., Daum café for Korean members) were posted to recruit new members. Usually, 6 to 8 members participated in each meeting. More than two-thirds of them were regulars, and new members joined once in a while. Before attending the meetings, they were encouraged to read the resources posted on Facebook and some members did further research for the debate topic on their own.
In the meetings, the other facilitator and I gave an overview of the discussion topic for 5 to 10 minutes. We also provided some ideas for pros and cons on the issue to be discussed from reading materials that were posted on the Facebook group page in advance. After that, members were randomly assigned to either the proposition or opposition team. Each team talked with their team members for 10 to 15 minutes to come up with arguments that they would present in the debate. The debate club practiced parliamentary debating style, which has three speakers in each team. During a debate, the first speaker from the proposition team introduced the topic and defined the terms they would use in the debate. Then, the first speaker presented the first argument. Next, the first speaker from the opposition team defined the terms and presented their first argument. The second speakers from each team supported what the first speakers had argued, and then they presented the new arguments. The roles of the third speakers were to present counter-arguments against the other team. After the third speakers, anybody could join in for rebuttal rounds. A whole debate usually lasted about an hour and a half.

3.1.2) The participants

Twelve ESL learners were recruited on a volunteer basis from a debate club. The participants wished to improve their English writing skills by participating in collaborative summary writing. I asked participants to form groups of three that would each contain at least one member with a first language (L1) different from that of the other two members. Such grouping was based on the finding of previous L2 synchronous voice-based CMC studies (e.g., Bueno Alastuey, 2011; Cheon, 2003) that communication in English among peers who share an L1 was not authentic or meaningful. Among the four groups, three groups consisted of two Koreans and one Japanese, and one group had two Koreans and one Taiwanese. Small groups
provide ESL learners more resources and produce more LREs compared to pair work (Fernández Dobao, 2012). The appearance of free riders also tends to decrease in small group work compared to interactions in large groups (e.g., Kessler & Bikowski, 2010; Morgan, Allen, Moore, Atkinson, & Snow, 1987).

As shown in Table 3.1, eight Koreans, three Japanese and one Taiwanese participated in this study. Their ages ranged from 22 to 31 years. Four of them were males and eight of them were females. In terms of their status in Canada, four participants self-identified as ESL students and three of them reported that they were attending a Canadian college or university. Five of them informed me that they were employed. Their length of stay in Canada ranged from two months to five years and three months. Jill had been in Canada for two months at the time of the data collection. Victoria had stayed in Canada the longest among the participants, residing in the country from her high school years. Their length of participation in the Debate Club also varied from two to seven months. Haru, Joey, Mimi, and Eunbie were senior members of the club while the other eight participants were relatively new to the club. Participants’ English proficiency and test-taking experiences also varied. Five people reported their TOEIC scores and two people had taken the TOEFL iBT. One participant reported her IELTS score. According to TOEIC score descriptors (Tannenbaum & Wylie, 2013), Haru had acquired professional proficiency in English. Mimi, Yuko, Mike, and Scott possessed working proficiency in English. Ryan and Eunbie were assessed as intermediate and advanced learners, respectively, based on TOEFL iBT score descriptors (Understanding Your TOEFL iBT® Test Scores, 2015). Carey was identified as a competent user of English (IELTS Bands and Scores, n.d.).

Four participants did not have language proficiency test scores at the time of their participation: Joey, Jill, Lauren, and Victoria. Considering these participants’ English language
performances in debate meetings, their status and length of stay in Canada, Joey, Lauren, and Victoria can be identified as upper-intermediate to advanced learners of English. Jill’s English proficiency can be identified as low intermediate (i.e., a learner who can make simple sentences and can understand the main points of a conversation but needs more vocabulary, B1 in the Common European Framework of Reference for Languages).

Table 3.1
Participants’ Profiles

<table>
<thead>
<tr>
<th>Group</th>
<th>Pseudonym</th>
<th>Ethnicity</th>
<th>Age</th>
<th>Gender</th>
<th>Status in Canada</th>
<th>Length of stay in Canada</th>
<th>Length of participation in debate club</th>
<th>Language proficiency test (date)</th>
<th>Participants’ language proficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Haru</td>
<td>Japanese</td>
<td>27</td>
<td>Female</td>
<td>ESL student</td>
<td>11 months</td>
<td>6 months</td>
<td>TOEIC 945/990 (2013)</td>
<td>Proficient user</td>
</tr>
<tr>
<td>1</td>
<td>Joey</td>
<td>Korean</td>
<td>29</td>
<td>Male</td>
<td>ESL student</td>
<td>2 years 3 months</td>
<td>7 months</td>
<td>N/A</td>
<td>Upper-intermediate</td>
</tr>
<tr>
<td>1</td>
<td>Mimi</td>
<td>Korean</td>
<td>29</td>
<td>Female</td>
<td>Associate teacher in a daycare</td>
<td>1 year 10 months</td>
<td>6 months</td>
<td>TOEIC 850/990 (2010)</td>
<td>Independent user</td>
</tr>
<tr>
<td>2</td>
<td>Lauren</td>
<td>Korean</td>
<td>30</td>
<td>Female</td>
<td>Pet groomer</td>
<td>2 years</td>
<td>2 months</td>
<td>N/A</td>
<td>Upper-intermediate</td>
</tr>
<tr>
<td>2</td>
<td>Yuko</td>
<td>Japanese</td>
<td>29</td>
<td>Female</td>
<td>Worked for cafe and free Japanese magazine</td>
<td>4 years 11 months(^3)</td>
<td>2 months</td>
<td>TOEIC 825/990 (2012)</td>
<td>Independent user</td>
</tr>
<tr>
<td>2</td>
<td>Carey</td>
<td>Korean</td>
<td>26</td>
<td>Female</td>
<td>ESL student</td>
<td>2 years 5 months</td>
<td>3 months</td>
<td>IELTS 6/9 (2013)</td>
<td>Competent user</td>
</tr>
<tr>
<td>3</td>
<td>Mike</td>
<td>Korean</td>
<td>31</td>
<td>Male</td>
<td>Postdoc fellow</td>
<td>1 year 7 months</td>
<td>1 month</td>
<td>TOEIC 860/990 (2008)</td>
<td>Independent user</td>
</tr>
</tbody>
</table>

\(^1\) TOEIC is the Test of English for International Communication. Total scores are on a scale from 10 to 990.

\(^2\) Terms describing participants’ English language proficiency were based on the scoring rubrics for each test.

\(^3\) Yuko lived 4 years in the US from age 3 to 7. She identified herself as an L2 speaker of English.

\(^4\) IELTS is the International English Language Testing System. IELTS scores based on each for the four skills (i.e., listening, reading, speaking, and writing) on a scale of 1 to 9.
3.2) Writing tasks

The participants were asked to write collaboratively three debate summaries using Google Docs and text/voice-chat, as described in Table 3.2. These summary reports were supplementary activities to the actual debates. Most of the participants were fairly new to web-based collaborative writing.

Table 3.2

Descriptions of Writing Tasks

<table>
<thead>
<tr>
<th>Tasks types</th>
<th>Task Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>A debate summary using Google Docs and built-in text-chat</td>
<td>- Three participants interact using text-chat and write a page of collaborative summary report on a debate meeting for about an hour.</td>
</tr>
<tr>
<td>A debate summary using Google Docs and Skype</td>
<td>- Three participants interact using voice-chat and write a page of collaborative summary report on a debate meeting for about an hour.</td>
</tr>
</tbody>
</table>

5 *TOEFL iBT* is the Test of English as a Foreign Language Internet-Based Test. Its full score is 120.
6 Victoria graduated from secondary school in Canada and she was a college student at the time of her participation. She informed me that she needed to score more than 85 out of 100 in Grade 12 English to apply for university or college.
Originally, each group was expected to write two summaries. However, after administrating the data collection for Group 1, it seemed that participants needed some time to familiarize themselves with online collaborative writing tools. For example, Mimi mentioned that she would be able to write a summary better next time because she would become more knowledgeable about how to use the tools after participating in two summary writing activities. Also, Haru said that she was not good at using Google Docs after Task 1. However, she reported in her second stimulated-recall interview that she felt much more comfortable using the web-based writing tools. To have a better picture of learners’ interactions and performance on the tasks, the third writing task was added to this study. From Group 2 on, they wrote three debate summaries, once by interacting via text-chat and then next voice-chat. The orders of text and voice-chat were alternated by group to counter balance the effects of the task order. For the third writing session, each group had the freedom to choose the mode of communication based on their preferences. All three groups chose to use voice-chat as the mode of communication for their third writing task.

As shown in Table 3.3, debate topics covered various areas such as economics (e.g., one world currency, fair trade), science (e.g., genetically modified food), and pop culture (e.g., reality television shows, advertising). The debate topics were chosen by debate members from a debate resource website (idebate.org/debatabase).

Table 3.3

Modes of Communication, Debate Dates, and Topics

<table>
<thead>
<tr>
<th>Group</th>
<th>Task</th>
<th>Mode of communication</th>
<th>Date</th>
<th>Debate topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Text-chat</td>
<td>April 4, 2013</td>
<td>Would you support one world currency?</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Voice-chat</td>
<td>April 17, 2013</td>
<td>Do introverts make better leaders?</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Writing a summary report for a debate meeting in a group is an inherently collaborative task. The participants already had shared information from the meeting, and they had to reconstruct this information into an agreed-upon text by interacting with one another. This writing task resembles in some aspects of the dictogloss task of previous studies (e.g., Storch, 1999; Swain & Lapkin, 1998, 2002), which has been suggested to promote peer collaboration and language-related episodes (LREs), but with the fundamental difference that the present summary tasks involved authentic, naturally motivated topics and contexts rather than collaborative writing prescribed by teachers as a language learning exercise. In terms of activity theory, the community, division of labor, rules, and expected outcomes of this kind of collaborative writing differ fundamentally from classroom tasks such as dictogloss because they were determined by the group members in the context of the debate club rather than by a teacher, pedagogical materials, or curriculum. Crucially, the “subjects” of this activity system were motivated to learn English as debaters working in a team to complete the “object” of a written summary, rather than as students completing a pedagogical exercise. To increase the authenticity and community of the writing task, I encouraged the participants to post their summaries on the club’s Facebook page, thereby creating a purposeful audience.
3.3) Google Docs and Skype as collaborative writing tools

To document the processes of participants’ collaborative writing, Google Docs, its built-in text-chat, and Skype were utilized in this study. Google Docs is a web-based word processor that allows writers to create documents, track revisions and changes, and collaborate with others in real time (Google Docs, n.d.). Google Docs enables writers to access the documents they created from any place and any time so long as they have an Internet connection. It also provides a text-chat function that allows participants to communicate with others while they are working on a composition synchronously. Having the text-chat function during collaborative writing activities would facilitate verbal interaction among participants; for example, Zorko’s study (2009) reported that participants would have communicated with others in English during the writing activities, instead of using email, if a wiki had provided text-chat functions.

For voice-chat, participants were asked to use Skype. It is a telecommunication application that allows people to have text messaging, voice, and video-chat simultaneously (Skype, n.d.). In the current study, shared documents (Google Docs pages) were used for the tasks as an online collaborative writing interface. To use Google Docs and Skype, participants were required to set up accounts. I created both Gmail and Skype accounts and provided them to the participants for this study. By providing them with accounts, possible concerns for being connected with others in Skype for purposes other than the research were avoided.

3.4) Data collection procedure

3.4.1) Participant recruitment and profiles

Data were collected based on the availability of the participants as shown in Figure 3.1. Group of three participants were recruited one at a time. For instance, Group 2 was recruited, and
they wrote writing summaries for three different debate meetings during the months of June, July, and August in 2013. Then, Group 3 was recruited in August 2013 after the data collection of Group 2 was completed. Data collection lasted for approximately six months. Most of the groups took four to five weeks to complete their participation in this study depending on participants’ availability for participating in debate meetings, writing sessions, and stimulated-recall interviews. However, the data collection for Group 2 took about two months due to one participant’s family emergency: she had to go back to her home country for a month.

2013

<table>
<thead>
<tr>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>Group 4</th>
</tr>
</thead>
</table>

Figure 3.1. Data collection timeline

The participants also filled out a survey questionnaire (see Appendix A) comprising two parts: background information and goals of the participants. In the first section, the participants were asked to provide their profile information such as age, ethnicity, and the length of stay in Canada. In the second section, participants were asked to provide three reasons for attending debate meetings and their goals for the writing task. Right before the second and third writing sessions, the participants were also asked to set three goals for the writing (see Appendix B).

3.4.2) Training on online writing and screen recording tools

At the beginning of the data collection, the participants had a training session to learn how to use Google Docs, built-in text-chat, and voice-chat. I arranged these sessions prior to
debate meetings and writing sessions to provide participants with demonstration and training on how to use Google Docs and how to communicate with text and voice-chat (Skype). Most of the participants, except Eunbie and Victoria who had used Google Docs a few times for their university course projects, were new to the use of web-based writing tools.

Also, they learned how to record a computer screen. Screen recording refers to real-time recording of the computer screen that captures everything that is displayed on the screen and creates a video file out of it. Also, I screen-recorded collaborative writing activities from my computer. Participants who used a PC installed on their own laptop computers a free screen recorder, BB Flashback Express, and participants who used a Mac recorded their screen using Quick Time Player, which is a built-in application on Mac computers. Figure 3.2 shows a snapshot of a screen recording of voice-chat, which involved real-time recording of the computer screen, creating a video file that captured everything displayed on the screen.

Screen recording allowed me to conduct unobtrusive observation of participants’ behavior (Cohen, 2014) and to access participants’ computer-based activities outside of Google Docs, such as their uses of an online dictionary or spell-checker. Seedhouse and Almutairi (2009) proposed that combining certain technologies, for example using both task-tracking program and video-recording to capture task-in-process, enables researchers to relate task-related actions and non-verbal communications to verbal interactions. Integrating a variety of sources of data on interaction in analysis gives a better picture of what is actually happening in tasks-in-process.
3.4.3) Debate summary writing sessions

The participants were asked to login to Google Docs at a set time and work on the report for about an hour. In the beginning of writing session, I informed them I would be on Skype as an observer. Then, I turned off my microphone and observed their screen activities. I told them to ask me for help if they had technical problems. The participants were allowed to use resources such as online dictionaries and their notes if they needed to. Each participant was asked to stay in a different room while they were writing so that they had sensed that they communicated solely with others by text or voice-chat. The order of the tasks was counter-balanced. In other words,
Group 1 and 3 did writing tasks via text-chat first and voice-chat next. Group 2 and 4 wrote a summary using voice-chat first and text-chat next. Eleven debate summaries were collected from four groups in total (see Section 3.2 for details).

3.4.4) Stimulated-recall interviews

Within two days of each writing task, the participants individually completed stimulated-recall interviews (Gass & Mackey, 2000) within 30 minutes to an hour. To formulate stimulated-recall questions, I watched screen recordings and kept a record when participants had no online activities. Each participant was asked to elaborate on his/her task goals and to comment on collaboration and other details of their interactions while watching the screen-recorded data. The participants gave their recollections of why and how they made decisions on comments and/or suggestions during the task (see Appendix C). Also, they were asked to answer what they were thinking or doing when there were no activities on the computer screen. The stimulated-recall interviews, therefore, revealed what the participants thought was particularly important and offered insights into relevant aspects I may have neglected. During the stimulated-recall interviews, participants were asked to talk about their perceptions of collaborative writing tasks using synchronous web-based writing and communication tools. These stimulated-recall interviews were audio-recorded and transcribed verbatim. Interview data in Korean were later translated from Korean to English, but most of the other data in this study were kept as the participants originally produced them, including grammatical errors and misspelled words.

I decided to conduct stimulated-recall interviews in Korean with Korean participants since interviewing participants in their and my first language would provide more in-depth, rich, and

---

7 Bloom (1954) found that people’s memories in recalls were 95% accurate, if recalls were prompted within a short period of time (generally 48 hours) after the event (Gass & Mackey, 2000).
natural data. However, I interviewed Taiwanese and Japanese participants in English. I considered having a Taiwanese and a Japanese colleague from my department interview the participants, but I decided to conduct these interviews myself on the assumption that introducing other interviewers would probably create unnecessary variation or even disruptions or misinterpretations. I assumed that getting information from the participants necessary for the purposes of the research was more crucial than getting linguistically rich data. I asked clarification questions to the participants when I did not understand them clearly.

3.4.5) Sources of data

Debate summaries, screen recordings, transcripts of text and voice-chats, stimulated-recall interviews, and survey questionnaire comprised the data for this study. If the participants took notes for the debate meeting, these notes were also collected as supplementary data. To document screen-recording data, the Google Docs revision history of a debate summary was retrieved and pasted into spreadsheets. Text-chats were copied from Google Docs’ chat window, voice-chats were transcribed, and both were added to the spreadsheets. Excerpts presented in this thesis were directly taken from text or voice-chat, and language errors were not removed. Voice-chats were transcribed based on notations that had been used by researchers who had transcribed similar data (e.g., Kowal & Swain, 1994; Storch, 2002), and a few additional symbols were created for this study (see Appendix D for transcription conventions). Participants’ relevant activities outside of Google Docs, such as using an online dictionary, were also added to the spreadsheets using recordings from each participant’s computer screen. Also, transcripts of stimulated-recall interviews were added as side notes to the spreadsheets to provide additional information on what participants did and why they may have done it.
3.5) Analyses

To answer the research questions (RQs), several kinds of qualitative data were used, and different layers of analyses were conducted. First, interactional patterns of each group (RQ 1) were identified by employing Storch’s (2001) dyadic interaction model and patterns of interaction. Second, to examine influences of learners’ goals on their interactions (RQ 2), learners’ goals (RQ 2a) were investigated from the survey questionnaire and stimulated-recall interviews. Then, episodes indicating participants’ attempts to achieve their goals were informed by the constant comparative method (Glaser & Strauss, 1967) in which the transcripts of screen recordings and stimulated-recall interviews were iteratively reviewed (RQ 2b). For this analysis MAXQDA (2015), which is a qualitative data analysis computer software, was utilized. Next, guided by Leont’ev’s notion of activity theory, which views actions as oriented towards goals, the influence of participants’ goals and goal-directed actions on group interactions (RQ 2c) were examined. Other mediating factors (RQ 3) were found guided by further applications of the constant comparative method and the second generation model of activity theory.

Table 3.4
Research Questions and Corresponding Data for the Analyses

<table>
<thead>
<tr>
<th>Research questions</th>
<th>Survey questionnaire</th>
<th>Screen recordings</th>
<th>Stimulated-recall interviews</th>
<th>Analytic tools/models</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Patterns of interaction</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Storch’s (2001) interaction pattern model</td>
</tr>
<tr>
<td>2a. Participants’ goals</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>Qualitative analysis and summary</td>
</tr>
<tr>
<td>2b. Participants’ attempts to achieve goals</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Leont’ev’s notion of activity theory</td>
</tr>
</tbody>
</table>
The analyses were done in two phases. In the first phase, a focal group was selected, and its data analyzed in detail. In the second phase, based on the findings from the focal group, data for the remaining three groups were analyzed to investigate and verify if the findings were similar to or differed from those of the focal group.

3.5.1) Selecting a focal group for initial analysis

As documented in detail in Chapter 4, I first selected one focal group from among the four groups, aiming to focus an initial, in-depth analysis on the group whose data were the most extensive and potentially informative. To do this, episodes were first identified and coded by episode type based on my iterative reading of participants’ text and voice-chat data and consideration of relevant coding schemes in prior research. An episode was defined as a segment of conversation contained a word, a turn, or several turns on the same topic (de Gurerrero & Villamil, 1994; Nelson & Carson, 1998) or purpose (Storch, 2001). I found from iterative reading of the present data that the episodes were similar to Storch’s (2001) classification of episode types as shown in Table 3.5. Similar phenomena appeared in both studies because they investigated students’ engagement in collaborative writing activities with similar kinds of interaction. I therefore adopted Storch’s categories of episode types for coding sub-categories of data in the current study. While Storch (2001) used types of episode to investigate how learners approached the writing task and to quantify salient features, in this study I used them to determine a focal group based on my identifying types and frequency of episodes.
Table 3.5

Types of Episodes (Storch, 2001, p.135)

<table>
<thead>
<tr>
<th>About-task talk</th>
<th>On-task talk</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) Reading task instructions</td>
<td>(i) Generating or phrasing an idea</td>
</tr>
<tr>
<td>(ii) Clarifying/Stating task requirements</td>
<td>(ii) Dealing with language use: Language related episodes</td>
</tr>
<tr>
<td>(iii) Assigning/Negotiating role or responsibility</td>
<td>(iii) Clarifying content</td>
</tr>
<tr>
<td>(iv) Announcing/Negotiating stage</td>
<td>(iv) Organizing ideas</td>
</tr>
<tr>
<td>(v) Negotiating/Stating task procedures</td>
<td>(v) Synthesizing idea</td>
</tr>
<tr>
<td>(vi) Orienting to task (location)</td>
<td>(vi) Writing conventions</td>
</tr>
<tr>
<td>(vii) Inviting contribution</td>
<td>(vii) Assessing text produced</td>
</tr>
<tr>
<td></td>
<td>(viii) Reading text composed (edited or reconstructed) or text provided (in editing and text reconstruction tasks).</td>
</tr>
</tbody>
</table>

3.5.2) Analysis of interaction patterns in online collaborative writing

To answer the first research question regarding interactional patterns in synchronous web-based collaborative writing tasks, data were analyzed adapting Storch’s (2002) dyadic interaction model that was based on Damon and Phelps’ (1989) indices of equality and mutuality.

3.5.2.1) Pattern of contribution

To examine the equality of contributions to the group, firstly, the portions of writing that each participant wrote for the tasks were quantified by examining Google Docs’ revision history. If someone made major revisions to what other members had written and these revisions remained in the final version of the text, that part was included as a portion of the writing of the
person who revised it. The numbers of words and turns in text and voice-chats were calculated. Then, the number of words per turn in text and voice-chats was tallied to determine the relative verbal contributions of each person to the tasks. Off-task talk was excluded from the analysis.

Turns were defined differently in text and voice-chat contexts. In the text-chat data, a turn was identified when a participant hit the enter key and published a message in the text-chat window, as the participants had control over when to publish a message. However, if a speaker held the floor and typed various lines of messages in a row but nobody interrupted the speaker, these turns were counted as one.

In the voice-chat data, a turn boundary was recognized when the current speaker (a) finished his/her utterance or (b) was interrupted by another and decided not to keep the floor after the interruption. If the current speaker was interrupted by another person but kept the floor, the entire sequence, including the completion of the utterance after the interruption, was counted as one turn. The identification of turns in the voice-chat data was guided by Markee (2000), who observed that overlaps in conversation are sometimes caused by listeners’ prediction of the end of a current speaker’s turn, which is not necessarily the boundary of a turn, unless the current speaker gives up the floor. When a participant has a non-verbal turn such as laughing, this occasion was excluded from turn counting.

3.5.2.2) Decision-making behaviors

To investigate the mutuality of the groups, on-task and about-task episodes in screen recording transcripts were coded with Li and Kim’s (2016) taxonomy of language functions which distinguishes between functions of initiation and responding as indications of the participants’ mutual engagement. Language function refers to mediating functions of language
such as agreement, suggestion, and apology as used in several previous studies of peer interaction in both in face-to-face (e.g., Lockhart & Ng, 1995; Zhu, 2001) and CMC contexts (e.g., Li & Kim, 2016; Li & Zhu, 2013).

After language functions of on-task and about-task episodes were coded, decision-making episodes were identified to investigate how and by whom the episodes were initiated (Li & Kim, 2016) and how these episodes were resolved (Storch, 2001). Decision-making episodes were identified as episodes where participants made decisions regarding the writing procedure (e.g., dividing the labor) as well as content and language of the summary.

These episodes were analyzed to investigate how and by whom the episodes were initiated (Li & Kim, 2016). To evaluate the level of engagement in the resolution of decision-making episodes, I followed Storch’s (2001) sequential analysis of resolving episodes. Each decision-making episode was evaluated by the degree of interactivity: interactive/low, interactive/medium, and interactive/high. Interactive/low involved cases where minimal interaction was evident (e.g., phatic utterances) or the dismissing of requests for assistance (e.g., “I don’t know”; Storch, 2001). Interactive/medium were occasions with some involvement of two or three participants, for example, when a confirmation request was followed by confirmation (p. 157). Interactive/high were “episodes in which [two or three] participants were substantially involved” by co-constructing each other’s suggestions to generate ideas (p. 159). A second coder (described below) coded 15% of the data and inter-coder reliability was 92%. Disagreements were resolved through discussion.

3.5.2.3) Qualitative analysis of interaction patterns
Guided by Storch’s (2001) patterns of dyadic interaction and associated traits (p. 279), I iteratively read the screen recording transcripts while noting patterns of interaction and the salient features in these transcripts. My observation notes were also used as a supplementary resource for this analysis. These analyses were presented as excerpts in the sections below describing each group’s interaction pattern (e.g., 4.3.1.3) Interaction pattern of Group 1).

3.5.3) Participants' goals in the collaborative writing tasks

For research question 2a, the participants’ goals were retrieved from the survey questionnaire and stimulated-recall interviews. Every time before they wrote a summary the participants were asked to set up three goals for the task (see Appendix B). These goals were further discussed in stimulated-recall interviews to allow participants to elaborate on why they came up with these goals and why they thought they were important. These goals were summarized and (in some instances) revised based on participants’ interviews during which they elaborated in more detail on their goals. They were also asked if their goals changed over time and if so, how and why they changed.

3.5.4) Analysis of influence of individuals’ goals on pattern of interactions

To answer research questions 2b and 2c Leont’ev’s notion of activity theory was used to examine the influence of participants’ goals and goal-directed actions on group interactions as well as to determine how group interactions impacted participants’ goals and goal-directed actions. The stimulated-recall interviews were followed up with questions about the goals that participants had stipulated before the tasks. Also, participants were asked to indicate how they and the others contributed to the summary writing tasks (see Appendix C, Section 2). Episodes
were then identified, indicating participants’ attempts to achieve these goals, through my iterative readings of the screen recording transcripts, and these episodes were further examined to determine what actions participants took to achieve their goals and how these goal-directed actions influenced the collaboration of the group.

3.5.5) Factors that mediate learners’ collaboration

To identify factors that mediated participants’ collaboration, Engeström’s expanded activity model (1987/2015) was used. Factors that mediate participants’ collaboration were identified guided by components of Engeström’s activity model: instruments, subject, object, rules, community, division of labor, and outcome (see Figure 2.1). The data were iteratively reviewed to classify cases of conflict that might have been caused by systemic contradictions (Engeström, 1987/2015) among these elements. How these conflicts are resolved (or not) were analyzed. To explore participants’ perspectives and triangulate the analysis on mediating factors of collaborative writing, the participants were asked to answer questions about task representation (rules), working in a group (community), using technology (tools), and contributions of each member (division of labor) in their stimulated-recall interviews (see Appendix C, Sections 1 and 2).

3.5.6) Reliability and credibility

To ensure the overall reliability and credibility of findings and inferences based on them, the study employed data from multiple, complementary sources such as screen recordings, text and voice-chat scripts, Google Docs’ revision history, survey questionnaires, and stimulated-recall interviews.
To establish reliability of the data coding, a second rater, a PhD candidate from the same department specializing in language and literacy education, coded 28% of the data (i.e., four transcripts out of 11 from each group) to select a focal group, and our inter-rater agreement for identifying activity types was 83%. Utilizing the results of the two analyses that I used to determine the interaction patterns of the four groups (i.e., patterns of contribution, decision-making processes) and Storch’s interaction pattern model, the second rater independently determined the pattern of interactions for all four groups. In eight out of 11 cases, the second rater and I agreed on the patterns of interaction. Our categorization of three cases (i.e., Task 2 of Group 1 (facilitator/participants pattern) and Tasks 1 and 2 of Group 4 (leader/participants pattern)) did not match. However, the second rater indicated three patterns as the expert/novice pattern, which was located in the same quadrant with facilitator/participants and leader/participants patterns in Storch’s model. So, our differences were minor, and the second rater did identify that Haru (Group 1) and Scott (Group 4) led the collaborative writing activities.

To ensure the credibility of the data analysis and my interpretations, member checking was conducted. After finishing preliminary analyses for the results chapters, I wrote a short summary of the results for each group. The summaries were emailed to participants to read. I asked them to assess the accuracy and adequacy of the inferences made in the analysis and to elaborate and provide additional information or comments if they found the summary lacking or inadequate. Six out of 12 participants responded with feedback, which was mostly corrections of minor inaccuracies in their background information. The draft of the results chapters was revised to reflect participants’ input.
Chapter 4: Preliminary analysis: Focal group

This chapter first reports on the process of focal group selection, the coding scheme developed to identify the types of interaction episodes, and the results of the focal group selection. Then results from analyses of the focal group are presented, identifying the group’s interaction pattern, how participant’s goals influenced their interactions, and the factors mediating participants’ interactions while writing collaboratively. The mediating factors found for the focal group were then used as a guideline to examine the remaining groups’ collaborations (which are reported in Chapter 5). The results from the focal group in the present chapter were published in the Journal of Second Language Writing as Cho (2017).

4.1) The focal group selection

4.1.1) The coding scheme for the focal group selection

As described already in Chapter 3, to select the focal group, episodes were coded by episode type based on my iterative reading of participants’ text and voice-chat data. Four categories of episode types emerged: (a) discussion of ideas to write; (b) deciding on procedures for the task; (c) monitoring group performance, and (d) off-task talk. Storch’s (2001) types of episodes (see Table 3.4) were adapted to establish these sub-categories. “Discussing ideas to write” is similar to Storch’s category of “about-task talk” and included behaviors such as generating or organizing ideas and assessing the text produced. My category of “making decisions on procedures for the task” is similar to, but more detailed than, Storch’s category of “on-task talk”. I found it necessary to create a category called “monitoring group performance” in which members checked on each other’s progress, made evaluative comments, and kept time
for the writing tasks. Table 4.1 summarizes the main and sub-categories of episode types.

Definitions of sub-categories and examples are presented in the following subsections.

Table 4.1

Types of Episodes in the Current Study

<table>
<thead>
<tr>
<th>Main category</th>
<th>Sub-category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussing ideas to write</td>
<td>- Generating and/or organizing an idea</td>
</tr>
<tr>
<td></td>
<td>- Sharing information</td>
</tr>
<tr>
<td></td>
<td>- Clarifying content</td>
</tr>
<tr>
<td></td>
<td>- Reading composed text out loud when the participants review together</td>
</tr>
<tr>
<td></td>
<td>- Assessing the text produced</td>
</tr>
<tr>
<td></td>
<td>- Asking permission for writing, editing, or revising others’ work</td>
</tr>
<tr>
<td></td>
<td>- Language related episode (LRE)</td>
</tr>
<tr>
<td></td>
<td>- Dictating what another member said</td>
</tr>
<tr>
<td>Making decisions on procedures for the task</td>
<td>- Announcing or negotiating stage</td>
</tr>
<tr>
<td></td>
<td>- Negotiating role/responsibility</td>
</tr>
<tr>
<td></td>
<td>- Negotiating or stating task procedures</td>
</tr>
<tr>
<td>Monitoring group performance</td>
<td>- Checking on others</td>
</tr>
<tr>
<td></td>
<td>- Providing evaluative comments on group/individual performance and the task</td>
</tr>
<tr>
<td></td>
<td>- Time keeping</td>
</tr>
</tbody>
</table>
**Off-task talk**
- Occasions when participants talked about issues unrelated to the summary writing task

4.1.1.1) *Discussing ideas to write*

When participants engaged in conversation about the content of debates and summary writing tasks these episodes were coded as “discussing ideas to write”.

*a) Generating and/or an organizing idea*

The sub-category classifies episodes in which participants discussed the content to be included in their summary and/or how it should be organized. In Excerpt 4.1, Haru explained the first rebuttal points of the second speaker to provide the group with information that they needed to include in the debate summary through Lines 1 and 3. Joey agreed to what Haru said in Line 4. Then, Haru suggested the group include what she mentioned previously in Line 5.

Excerpt 4.1 (Group 1, Task 2, voice-chat)

1 Haru: I think about the first, point of the second speaker rebuttal is like, because it talks about it takes time to make a decision. So maybe Jin mentioned that...uh,

2 decision make carefully is not always the best.

3 Joey: Yep.

4 Haru: So maybe we can write about it, too, here.

b) *Sharing information*

Sharing information represents episodes in which participants reported what they learned or noticed by engaging in tasks. As shown in Excerpt 4.2, Mike shared information that he found, about the concept called “internet relationship”, to his group in Lines 1 and 4.

Excerpt 4.2 (Group 3, Task 2, voice-chat)
Mike: Ha! Actually, I searched for the word about the internal relationship.

Eunbie: Yeah? HAHAHA!

Jill: Ehhhhh?

Mike: Yeah. Interpersonal relationship…yeah. Between people who have met online.

Jill: I see.

Mike: Yeah… there is.

Some sharing information episodes transformed into episodes of generating and/or organizing ideas if participants decided to include the information shared in their summary.

c) Clarifying content

In this category, participants clarified either what people talked about in debate meetings or what they wrote in their debate summary. In Excerpt 4.3, Mimi asked Haru and Joey to clarify what the second proposition team speaker said in the debate meeting in Lines 2, 3, and 4. Joey offered an explanation in Line 6. Haru also offered explanations from Lines 7 to 12. Mimi thanked others in Line 13.

Excerpt 4.3 (Group 1, Task 1, text-chat)

Haru: what is your question mimi?

Mimi: everyone. 2nd proposition speaker mentioned that one world currency make tax reduce or disappeared

I don’t understand why?

Haru: hmm

Joey: transpotation fee

Haru: also have to import products from other countries

So
they put the tax on the imports
especially on cheap products from other countries
if there was one currency
the government doesn’t need to put extra tax on the imports
Mimi: thanks.

Excerpt 4.4 illustrates an example of clarifying what a group member wrote in the debate summary. In Line 1, Victoria asked Scott what number 1 meant. Scott provided an explanation in Lines 2 and 4. Victoria showed her understanding by saying “i c” in Line 3.

Excerpt 4.4 (Group 4, Task 2, text-chat)
1 Victoria: what does 1 mean
2 Scott: first is opening for debate
3 Victoria: i c
4 Scott: 1 2 is number of speak[er]

d) Reading the composed texts out loud when the participants review together

Participants’ reading out loud was observed in some groups’ data. Mostly, participants read the written summary out loud to review or remember its contents together. Excerpt 4.5 shows that Haru was reading a paragraph from the summary to review it with her group members. Sometimes, participants read out loud what they wrote for themselves in small voices. These occasions were not included in my analyses because participants did not intend to communicate with others (i.e., it was more private speech than languaging.).

Excerpt 4.5 (Group 1, Task 2, voice-chat)
1 Haru: Okay. “Rebuttal. Communicating with people through writing is not an
efficient way. It is because communication should be quick and accurate. To
reduce misunderstandings between people, they have to talk with each other face to face. Therefore, communication through writing can have… a risk to make a mistake.” I think it’s okay.

e) Assessing the texts produced

When participants read a part of writing either silently or out loud to see if it was correct and made evaluative comments after such as “It is okay.” and “I think it doesn’t sound right.”, it was coded as assessing the texts produced. As shown in Excerpt 4.5, Haru was reading out loud a part of the group’s summary in Lines 1 through 4. Then, she provided the evaluative comment, “I think it is okay.” Her comment in line 5 was coded as assessing the text produced.

f) Asking permission for writing, editing, or revising others’ work

When a participant asked other members’ permission to add some part, to edit, and to revise other’s writing, these episodes were coded as “asking permission for writing, editing, or revision others’ work”. For example, in Excerpt 4.6, Haru asked Joey’s permission if she could edit the part Joey had written in Line 2. Her request was accepted by Joey in Lines 3 and 4.

Excerpt 4.6 (Group 1, Task 1, text-chat)

1 Haru: cool
2 joey can I edit the second proposition speaker?
3 Joey: yeah
4 please

g) Language related episodes (LREs)

Language related episodes (LREs) were any segments of participants’ interactions focused explicitly on language (Swain & Lapkin, 1995). When participants discussed with others specifically about language these events were coded as LREs. Excerpt 4.7 demonstrated such a
case. Ryan was reading quietly what Scott had written in Lines 1 through 5. He read the word “without” with stress and finished the phrase he was reading, which was, “without to take care of themselves”, with a raising tone indicating questioning. In Lines 6 and 7, Scott responded that he would revise this part. Then, in the Google Doc page, Scott changed “without ability” to “with losing ability”. In Lines 8 through 12, Ryan commented that the revised part of the writing seemed better.

Excerpt 4.7 (Group 4, Task 1, voice-chat)

1. Ryan: “Children could support their parents when their parents are getting old... when their parents are...old°. Without ability to take care of themselves?”

2. Scott: I know. I, I’m going to make a correction here. ((Scott changed “Without” to “With losing.”))

3. Ryan: Yeah, with. Yes. It is better.

4. “to take care of themselves and they do not have enough economic support.” Yeah, yeah. I think.

5. It’s good.

h) Dictating what other members said

When a member dictated what other members said into the Google Docs’ page, it was coded as dictating what another member said. This kind of episode happened a few times, mostly
in Group 1’s data, due to technical glitches. In Excerpt 4.8, Mimi stated what she wished to include in the summary in Lines 1, 3, 5, 7, and 8. Joey repeated and dictated what Mimi said on the Google Doc’s page in Lines 2, 4, 6, 9 and 10.

Excerpt 4.8 (Group 1, Task 2, voice-chat)

1 Mimi: “However, their network-“
2 Joey: Uh, “however…their network”
3 ((Joey wrote “However their network”.)
4 Mimi: “-is high quail-”
5 Joey: “-is”
6 ((Joey wrote “is”.)
7 Mimi: “It is high quality.”
8 Joey: “is high quality.”
9 ((Joey wrote “high quality”.)
10 Mimi: “By their accomplishing their work.”
11 Joey: “By their acom-, accomplishing their work”, right?
12 ((Joey wrote “by their accomplishing their work”.)
13 Mimi: Yeah.

(On Google Docs)

Introverts have also their network. It looks like the small amount of network.

**However, their network is high quality by their accomplishing their work.**

4.1.1.2) *Making decisions on procedure of the tasks*

Episodes in which participants made decisions on an activity and/or a procedure included decisions on how to proceed writing, divide the labor of writing, and assign roles were identified
as making decisions on the procedure of the tasks. Four sub-categories were adapted from Storch’s category of ‘about-task talk’ (2001).

a) Announcing/negotiating stage

When participants negotiated or announced the stage of the task, those episodes were coded as the announcing/negotiating stage. Expressions such as “Shall we start?” and “Let’s move on.” were observed in this category. In Excerpt 4.9, Mimi asked if they could start in Line 2. Also, Haru suggested her group to start summary writing in Line 3. Across the groups, these events were often observed in the beginning and at the end of the task.

Excerpt 4.9 (Group 1, Task 1, text-chat)

1   Joey: hi guys~
2   Mimi: do we start?
3   Haru: let's start

b) Negotiating role/responsibility

Participants negotiated for the division of labor and responsibilities regarding the summary writing tasks in this category of episode. In Excerpt 4.10, Lauren suggested to others to move onto the next part of the summary in Lines 1 and 2 while Yuko suggested that other members check each other’s writing then move onto the next part in Line 3. Lauren explained why Carey and she needed to move on (i.e., Yuko was still writing, and Lauran and Carey had finished their parts.) in Line 4. Carey agreed to Yuko about moving onto the other part but also Carey suggested checking the summary after finishing writing in Line 5. Carey responded to Lauren’s suggestion in Line 6. There was a delay as Carey paused to see Lauren’s message (in Line 4) because Carey was typing to respond to Yuko. Lauren agreed on Carey’s suggestion in Line 7 and she let others know what she would work on next in Line 8.
Excerpt 4.10 (Group 2, Task 2, text-chat)

1 Lauren L: I think we wrote pretty much well unless you guys want to add some more.
2 should we move on to next?
3 Yuko Y: maybe we can check each others and move on?
4 Lauren: while yuko is writing the last speaker of proposition.
5 Carey: yes. and why don’t we add more after all finished
6 oh okay
7 Lauren: ah that's a good idea!
8 I'll do Erica['s]

\textit{c) Negotiating/stating task procedures}

The participants talked about task procedures and decided how to precede with the task.

In Line 1 of Excerpt 4.11, Eunbie suggested that the summary needed to be divided into two parts by the team. Mike and Jill agreed on Eunbie’s suggestion in Lines 2 and 3, respectively.

Excerpt 4.11 (Group 4, Task 1, text-chat)

1 Eunbie: what about divide it into two categories? like proposition and opposition
2 Mike: yes
3 Jill: yup :)

\textit{4.1.1.3) Monitoring group performance}

Episodes in which a participant monitored the group and each member’s performance included cases of checking on other’s progress, suggestions, evaluative comments on their task performance, and time keeping episodes.
a) Checking on others

Sometimes participants asked what others were doing to see if everybody was doing okay with a summary task. In Excerpt 4.12, Scott checked on others by asking if everything was going well in Line 1. Victoria responded positively in Line 2. Also, Ryan responded positively, but he also expressed that he thought that the task was a bit difficult. Scott acknowledged Ryan’s comment.

Excerpt 4.12 (Group 4, Task 3, voice-chat)

1 Scott: Everything is going well?
2 Victoria: Yes.
3 Ryan: Yeah. A little bit hard.
4 Scott: Yeah.

This category also included episodes in which a member monitored the task procedure. As shown in Excerpt 4.13, members of Group 2 were monitoring the task procedure by interacting with one another. These episodes were mostly found when participants had some technical difficulties using Google Docs or Skype.

Excerpt 4.13 (Group 2, Task 1, voice-chat)

1 Lauren: Hm? We need to stop?
4 Yuko: Hhh. I don’t know.
5 Carey: Hhh.
b) Providing evaluative comments on group/individual performance and the task

Participants made evaluative comments on group and/or individual performance of the task as shown in Excerpt 4.14. Haru made a comment on how the group work was going in Line 1. Mimi agreed with Haru.

Excerpt 4.14 (Group 1, Task 2, voice-chat)

1 Haru: I think we are working so well today.
2 Mimi: Yeah.

c) Time keeping

The participants were encouraged to complete the task in about an hour. Consequently, here were some episodes in which participants kept track of the time to try not to go over time. In Excerpt 4.15, Ryan reminded other members that they had spent too much time in Lines 1 and 2, and he suggested others to wrap up in Line 4.

Excerpt 4.15 (Group 4, Task 2, text-chat)

1 Ryan: i think we spen too much time
2 spend
3 Scott: i know
4 Ryan: time to finish it
5 Scott: almost done

4.1.1.4) Off-task talk

Off-task talk appeared when the participants talked about issues that were not related to the writing tasks. Excerpt 4.16 illustrates an example of such off-task interaction. There were very few cases of off-task talk in the current study.
Excerpt 4.16 (Group 4, Task 1, voice-chat)

1 Scott: Achoo! Excuse me.
2 Ryan: Bless you.

4.1.1.5) “Cutting-in” episodes in ongoing conversation

When an on-going conversation was interrupted by other participant with a new topic, but the interrupted conversation continued after the newly initiated conversation, these new episodes were identified as a “cutting in” episode. They were coded separately from the continuing main conversation so do not appear in Table 4.1.

Excerpt 4.17 (Group 1, Task 2, voice-chat)

1 Joey: Okay, ya….first of all…. we need the… do you remember…what the
2 Lauren said?
3 Haru: Ah-
4 Joey: She wa, was the first=
5 Haru: Yes
6 Joey: =first speaker. right?
7 Haru: Yes. But she actually forgot mentioning about definition.
8 Joey: So I did. Right? So…
9 Haru: Maybe you can write about the definition what you did.
10 Joey: Okay. So… No, no, no. Not here.

((Joey’s cursor was in the same where the title was placed on the Google Doc page. Joey moved his cursor to the next line.))

11 Haru: Okay, hhhh….ah maybe I have to do. Oh, Joey, sorry. Because of my-
((Haru tried to rearrange the body text to the left by clicking “align text to left button on Google Docs’ menu bar.” Then, the title was moved to the left.))

12     Joey: No, no, no. It’s okay. You can put that in the middle.
13     Haru: Center? Okay.
14     Joey: And I can… start maybe… okay. Uh… just can I just write definition?

From Lines 1 to 8, Joey and Haru were discussing what the first speaker said in the debate. This episode was coded as concerning “ideas to write”. Then, in Line 9, Haru suggested Joey what to do (negotiating role/responsibility). However, this discussion was interrupted by Joey’s utterance in Line 10. While Haru and Joey were talking about the debate content, Haru was trying to align the body text to the left on the Google Doc page but this attempt caused the title of the summary, which was originally placed in the center, to move to the left. To solve this problem, their topic of the conversation switched to how and where to put the title and body text between Lines 10 and 13. When the problem was solved, Joey came back to the previous topic on what he would do next in Line 14. Line 9 happened before switching the topic in the conversation, and Line 14 was coded as “making decision on procedure for the task” because Joey was negotiating his share of writing with Haru.

4.2) Result of the focal group selection

To select the one focal group for the preliminary analysis, I tallied the frequency of episodes and episode types to see their distribution across the four groups as shown in Table 4.2. I assumed that if the number of episodes and episode types were frequent, it indicated that participants interacted more with others than in groups with fewer episodes. Table 4.2 shows the main categories of episodes coded, each of which included various subcategories as described
above. A second-rater, a PhD candidate from the same department, coded 20% of the data (i.e., two transcripts out of 11), and the inter-rater agreement for identifying episode types was 83%.

Overall, Group 1 had the most episodes and episode types in the text as well as voice-chat conditions. For this reason, Group 1 was selected as the focal group for this study. Results for Group 1 are presented in the remainder of this chapter. Results for the other groups are presented in Chapter 5.

Table. 4.2

Episode Types and Frequency

<table>
<thead>
<tr>
<th>Chat types</th>
<th>Group</th>
<th>Discussing ideas to write</th>
<th>Making decisions on procedures for the tasks</th>
<th>Monitoring group performance</th>
<th>Off-task talk</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text</td>
<td>1</td>
<td>25</td>
<td>28</td>
<td>6</td>
<td>0</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>14</td>
<td>26</td>
<td>3</td>
<td>1</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>14</td>
<td>28</td>
<td>4</td>
<td>0</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>10</td>
<td>13</td>
<td>7</td>
<td>1</td>
<td>31</td>
</tr>
<tr>
<td>Voice</td>
<td>1</td>
<td>91</td>
<td>55</td>
<td>24</td>
<td>0</td>
<td>170</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>32</td>
<td>7</td>
<td>2</td>
<td>4</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>20</td>
<td>18</td>
<td>7</td>
<td>0</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>25</td>
<td>23</td>
<td>6</td>
<td>0</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>9</td>
<td>10</td>
<td>1</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>21</td>
<td>24</td>
<td>7</td>
<td>1</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>24</td>
<td>30</td>
<td>8</td>
<td>0</td>
<td>62</td>
</tr>
</tbody>
</table>

*Note: Boldfaced numbers indicate which group had the highest frequency in each category.*

4.3) Results for the focal group

Group 1 included Haru, Mimi, and Joey. They were the first group from which I collected data on two tasks involving text-chat then voice-chat, as described in Chapter 3.

4.3.1) Interaction pattern
4.3.1.1) Patterns of contribution

As shown in Table 4.3, Mimi wrote almost three times as many words as the other participants did in Task 1 then all participants wrote similar amounts of text in Task 2. Haru, Mimi, and Joey, respectively, wrote 128 words, 294 words, and 105 words for Task 1 (with text-chat). For Task 2 (with voice-chat), Haru contributed 169 words to the summary while Mimi and Joey wrote 160 and 142 words respectively. Regarding their written and verbal communications, Haru took the most turns and used the most words per turn across the two writing tasks. The frequencies of Mimi’s and Joey’s turns were similar in Task 1, whereas Mimi took more turns than Joey did in Task 2. Furthermore, Mimi used slightly more words per turn than Joey did. In sum, Mimi contributed the most and Joey contributed the least in terms of writing. For the discussion of content and procedures of summary writing, Haru contributed the most and Joey contributed the least. Switching the mode of communication from text-chat to voice-chat appears to have led to a distinct increase in these participants’ interactions, although the increase might also be associated with the group’s becoming more familiar with each other and with the writing tasks and research procedures. All three participants’ contributions noticeably increased from Task 1 to Task 2 in the number of turns, the total number of words in turns, and words per turn.

Table 4.3

Number of Words in Writing, Turns, and Words Per Turn

<table>
<thead>
<tr>
<th>Task</th>
<th>Participants</th>
<th>Total number of words written in the summary (% of writing contribution)</th>
<th>Total number of turns (% of turns)</th>
<th>Total number of words in turns</th>
<th>Words per turn</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Haru</td>
<td>128 (24.29%)</td>
<td>107 (42.96%)</td>
<td>596</td>
<td>5.57</td>
</tr>
<tr>
<td></td>
<td>Mimi</td>
<td>294 (55.79%)</td>
<td>70 (27.45%)</td>
<td>333</td>
<td>4.76</td>
</tr>
<tr>
<td></td>
<td>Joey</td>
<td>105 (19.92%)</td>
<td>78 (30.59%)</td>
<td>309</td>
<td>3.96</td>
</tr>
<tr>
<td>2</td>
<td>Haru</td>
<td>169 (35.88%)</td>
<td>409 (42.83%)</td>
<td>3019</td>
<td>7.38</td>
</tr>
<tr>
<td></td>
<td>Mimi</td>
<td>160 (33.97%)</td>
<td>295 (30.89%)</td>
<td>1748</td>
<td>5.93</td>
</tr>
<tr>
<td></td>
<td>Joey</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
To investigate the group’s relative mutuality, an analysis was conducted of who initiated decision-making episodes, how they were initiated, and how decisions in the group were made. As shown in Table 4.4, more decision-making episodes were found in Task 2 compared with Task 1. The participants mostly reached a consensus when taking their decisions: for 73% of the decisions in Task 1 and for 93% in Task 2.

### Table 4.4

**Decision-making Episodes: Agreement and Disagreement**

<table>
<thead>
<tr>
<th>Task</th>
<th>Decision-making episodes</th>
<th>Reached agreement (% of agreement)</th>
<th>No response or did not reach agreement (% of disagreement)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Text-chat)</td>
<td>26</td>
<td>19 (73.08%)</td>
<td>7 (26.92%)</td>
</tr>
<tr>
<td>2 (Voice-chat)</td>
<td>41</td>
<td>38 (92.68%)</td>
<td>3 (7.32%)</td>
</tr>
</tbody>
</table>

As shown in Table 4.5, in Task 1, Haru initiated the most decision-making episodes by making statements about the writing (8 cases) and direct requests to the group (6 cases). Joey also made statements about their writing (5 cases). In Task 2, Haru again initiated the most decision-making episodes (18 cases) primarily by making requests about the writing or writing procedures. Mimi and Joey also initiated episodes by requesting. The frequency and distribution of decision-making episodes increased from Task 1 to Task 2. Mimi’s initiating episodes distinctly increased from 1 to 13 episodes.

### Table 4.5

**Initiation of Decision-making Episodes and Language Functions**

<table>
<thead>
<tr>
<th>Task 1 (Text-chat)</th>
<th>Language Function</th>
<th>Participants</th>
<th>Task 2 (Voice-chat)</th>
<th>Language Function</th>
<th>Participants</th>
</tr>
</thead>
</table>
To evaluate the level of engagement in the resolution of decision-making episodes, I followed Storch’s (2001) sequential analysis of resolving episodes. Excerpt 4.18 demonstrates an analysis of a decision-making episode, showing who initiated and how the episode was initiated and resolved. In Lines 1 and 2, Haru initiated an episode by suggesting a revision of the summary. She invited Joey to contribute in Line 3. Joey responded to Haru by suggesting “living standard of the poor people.” Haru repeated what she had suggested previously but soon after, she agreed to Joey’s proposal in Lines 5, 6, and 7. Then, Mimi revised the sentence on the Google Doc as Joey suggested. This episode was coded as Interactive/high because the participants tried to build on each other’s suggestions and reached an agreement. Mimi did not verbally agree but her revision activity was coded as agreement since she revised the sentence as Joey suggested.

Excerpt 4.18 (Group 1, Task 1, text-chat)

1 Haru: the life standard of people in poor countries sounds better for me (Suggesting)

2 what do you think joey? (Eliciting)

4 Joey: living standard of the poor people

((On Google Docs))

1. One world currency makes the living standards of poor people in the poor countries worse than now.
(Suggesting)

5 Haru: the standard of living in poor countries (Stating)

6 living standard is good ( Agreeing)

7 Joey: there is no need “the”

8 “the” living standards (Suggesting)

((Mimi revised the sentence as Joey suggested)) ( Agreeing)

As shown in Table 4.6, decision-making episodes were mostly resolved in the range of interactive/medium and interactive/high engagements, although more resolutions appeared in Task 2 compared to Task 1.

Table 4.6
Level of Engagement in the Resolution of Decision-making

<table>
<thead>
<tr>
<th>Task</th>
<th>Interactive/Low</th>
<th>Interactive/Medium</th>
<th>Interactive/High</th>
<th>No Response</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Text-chat)</td>
<td>1 (3.85%)</td>
<td>16 (61.54%)</td>
<td>7 (26.92%)</td>
<td>2 (7.69%)</td>
<td>26</td>
</tr>
<tr>
<td>2 (Voice-chat)</td>
<td>2 (4.88%)</td>
<td>17 (41.46%)</td>
<td>22 (53.66%)</td>
<td>0 (0%)</td>
<td>41</td>
</tr>
</tbody>
</table>

4.3.1.3) Interaction pattern of Group 1

Through analysis of individual contributions and decision-making processes, interaction patterns of the group were identified as Facilitator/Participants in Task 1 and Collaborative in Task 2 as shown in Figure 4.1. In this section, I will discuss the pattern of interaction using Storch’s (2001) patterns of dyadic interaction and associated traits (p. 279) as a guideline.
From the equality and mutuality analysis, the interaction pattern of Task 1 was identified as facilitator/participants. This pattern shares some characteristics of expert/novice and collaborative interactions. There was one person (Haru) who controlled the task more like an expert, but all three participants contributed actively and equally to the discussion and writing in a collaborative pattern. What is different from the expert/novice pattern is that Haru took more control over the task but played the role of a facilitator rather than an expert by keeping time, checking on others’ progress, and resolving conflicts among participants. Excerpt 4.19 is an example of Haru’s attempts to manage the group’s time. In Line 1, Joey asked if he needed to write details and Haru suggested Joey come back later if they had time in Lines 2, 3 and 5. Joey agreed to Haru’s suggestion.

Excerpt 4.19 (Group 1, Task 1, text-chat)
70

1 Joey: should i write details too?

2 Haru: no detail

3 we have to look over and if we have time

4 Joey: okay then, that is what i mentioned yesterday

5 Haru: let’s come back for the detail

Haru also facilitated the writing process by mediating conflicts between Mimi and Joey.

Excerpt 4.20 shows one of her attempts to resolve such a disagreement. Mimi made a suggestion to Joey in Lines 1 and 2 and she called on Joey after waiting a minute, expecting his response in Line 3. Joey responded to Mimi by saying what he wrote was the definition of his team in Line 5. Mimi seemed to disagree with Joey by laughing and asking a clarification question in Lines 6 and 7. Joey asked if Mimi wanted him to write more in Line 8, but soon after he explained that what he wrote was the initial remark of his team in Line 9. Mimi commented that what Joey wrote was not a definition of world currency in Lines 10 and 11. Haru intervened and suggested to Joey that he keep his first sentence as a part of the definition and the second sentence as an argument for his team in Lines 12 to 14. Haru tried to mediate the conflict between Mimi and Joey by finding common ground so that they could work together. Finally, Joey accepted the suggestion and asked Haru and Mimi for help in Line 15.

Excerpt 4.20 (Group 1, Task 1, text-chat)

Mimi Zheng: Joy please write the definition of your position. (On Google Docs)

The concept of a single world currency has been suggested since the 16th century for some reasons. A single currency would not be subject to exchange rate fluctuations.
Mimi: hahahaha... Joey is that definition??

Joey: do you want me to write more?

i mean that is the proposition’s start

Mimi: No i mean it’s not the definition of the world currency

Haru: let's keep your first sentence as a definition and put your second sentence for your point

Joey: okay then help me guys

Also, Haru’s facilitating talks were observed in this study. “Facilitating talk” is defined as an utterance that fosters collaborative summary writing activity in this study. For example, Line 2 of Excerpt 4.21 displays an example of Haru checking up on other group members (or their progress in writing), and Excerpt 4.22 (Lines 1 to 4) shows the timekeeping function of facilitating talks. Also, Excerpt 4.23 (Lines 1 to 3) demonstrate an example of Haru eliciting some ideas or answers by asking others questions. In facilitating talks, Haru used “you guys”, “we”, and “together” to suggest other members do something together.

Excerpt 4.21 (Group 1, Task 1, text-chat)

Haru: I checked the yujin's part

what are you doing joey?

Joey: i just finish mine
Excerpt 4.22 (Group 1, Task 1, text-chat)

1 Haru: mimi since we don't have enough time, could you start writing down your
2 opposition points?
3 we can review after
4 together
5 Mimi: ok

Excerpt 4.23 (Group 1, Task 1, text-chat)

1 Haru: Joey and mimi mentioned the definition.
2 do you guys remember
3 what you said?
4 Joey: yeah,
5 Mimi: I would like to write the definition of my position.

Mimi and Joey contributed actively to the discussion and the writing task compared to an
absolute novice who would mostly get help from an expert. Regarding the share of writing, Mimi
wrote the most parts of the written text (see Table 4.3). Often, Mimi or Joey assisted Haru in
understanding the debate content, and they checked and gave feedback on the part she wrote.

Excerpt 4.24 demonstrates that Haru, who made more verbal contributions to the task,
was not the only expert in the group who held information; overall, such expertise was rather
fluid among peers (as in Ohta, 2001; Storch 2002; Swain & Lapkin, 1998). In Lines 1 and 2,
Haru requested clarification of the sentence “the amount of resources will determine”. Then
Mimi explained the meaning of resources by giving examples in Line 3.

Excerpt 4.24 (Group 1, Task 1, text-chat)

1 Haru: what does “the amount of resources will determine”?
what does it mean?

Mimi: kind of nature resources such as gas, oil

Haru: did he mention that? I might not understand. Thanks.

b) Task 2: Collaborative

The interaction pattern of Task 2 was identified as collaborative as shown in Figure 4.1. In terms of equality, Mimi and Joey’s verbal contributions increased markedly from Task 1, although Haru still contributed the most verbal interactions. All three participants wrote more equally in Task 2. In terms of mutuality, participants’ initiation and resolution of decision-making episodes evened out and participants were more interactive than in Task 1. In particular, Mimi’s initiation increased distinctly (as shown in Table 4.5 above).

Excerpt 4. 25 (Group 1, Task 2, voice-chat)

((Joey noticed that there was underlining on the word quiet.))

((On Google Docs))

1 Joey: Quiet.

2 Haru: Joey?

3 Joey: Uhm?

4 Haru: What did you say?

5 Joey: Hhh. I’m just=

6 Mimi: [Be, be quiet?

7 Joey: [=quiet.

8 Haru: Do you have any…uhm, Joey?

9 Joey: Oh, what is it?

10 Haru: Are you okay?

An extrovert is a person who is very friendly, outgoing, talkative, outspoken and energetic behavior and they are energized by being around other people. On the other hand, an introvert is more likely to get recharged by being just alone at home and they are quiet, soft-spoken
Joey: The spelling of quiet.

Mimi: q-u-i-e-t.

Joey: That’s right, right?

Haru: Yeah, right.

Joey: Why is=

Haru: [I will check it.]

Joey: [=saying (it is) wrong .]

((Haru checked the spelling of the word “quiet” using her spell checker.))

Haru: Ah, maybe because of the next sentence. “They are quiet-

((Joey wrote “-spoken” and the underline disappeared.))

Joey: Oh, yeah, yeah, yeah. I see.

Excerpt 4.25 demonstrates how each participant assisted one another to solve the problem. Here, Joey had a question and Haru and Mimi helped Joey to pool their collective resources to solve the problem. In Line 1, Joey said “quiet” because he noticed that the word “quiet” was underlined on Google Docs indicating something was wrong (e.g., spelling, grammar, or punctuation). Haru tried to get his attention in Line 2 and she asked him to clarify the question in Line 4. Joey tried to explain (Lines 5 and 7) and Mimi tried to assist Joey by suggesting “be quiet” as possible words to complete his sentence in Line 6. Haru tried to figure out what Joey was trying to say in Line 8. Then, Joey asked how to spell the word “quiet” in Lines 9 and 11. Mimi answered Joey’s question by spelling out the word in Line 12. Joey agreed
with Mimi and also asked for confirmation in Line 13. Haru confirmed that the information
Mimi provided was correct in Line 14. In Lines 15 and 17, Joey asked why the word “quiet” is
underlined although the spelling of “quiet” is correct. Haru said she would check the spelling of
“quiet” and she did so by using the spellchecker in Line 16. Then, Haru explained that the
underlining appeared because the sentence, which contains the word “quiet”, was not complete
in Lines 18 and 19. Joey added the word “soft-spoken” on Google Docs and then the underlining disappeared. In Line 20, he agreed with Haru.

4.3.2) Influence of individuals’ goals on pattern of interaction

4.3.2.1) Participant’s goals on writing tasks

Participants were asked to set three goals before every task; these are shown in Table 4.7. Participants elaborated further on their goals in stimulated-recall interviews. It was found that
some of the goals were similar to one another. Some participants told me that two goals that were
stated slightly differently were actually the same or similar while they were explaining about
their goals. Accordingly, I revised and combined these similar goals based on their explanations
and checked with the participants to verify that they agreed to my revisions.

Table 4.7

Participant’s Goals on Writing Tasks

<table>
<thead>
<tr>
<th>Participant</th>
<th>Task 1</th>
<th>Task 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haru</td>
<td>1) To listen to others’ opinions patiently</td>
<td>1) To listen to others’ opinions patiently</td>
</tr>
<tr>
<td></td>
<td>2) To respect others’ opinions</td>
<td>2) To respect others’ opinions</td>
</tr>
<tr>
<td></td>
<td>3) To help each other to write the summary</td>
<td>3) To help each other to write the summary</td>
</tr>
<tr>
<td>Mimi</td>
<td>1) To review the debate content</td>
<td>1) To check the content with the others</td>
</tr>
<tr>
<td></td>
<td>2) To document the debate content for my</td>
<td>in my group</td>
</tr>
<tr>
<td></td>
<td>own information.</td>
<td>2) To document the debate content for my</td>
</tr>
<tr>
<td></td>
<td></td>
<td>own information.</td>
</tr>
</tbody>
</table>
Joey
1) To review the details of the debate
2) To document the debate

1) To review the details of the debate
2) To document the debate

4.3.2.2) Participants’ goals and their influence on interaction

a) Haru’s goals and their influences on interaction

Haru’s goals focused on collaboration with others during their writing activities, namely, to listen to the others’ opinions patiently, to respect their opinions, and to help each other to write the summary. Her goals and goal-directed actions shaped a facilitator/participants pattern in Task 1. Haru’s intention of volunteering to facilitate the group was explored during the stimulated-recall. She said:

I want to organize everything… But if I work with other people, I have to care about another people’s pace and everything. It is sometimes… annoying to be honest. But I also feel like… I have to work on it because I cannot work by myself in my real world.

To pay attention to what others said, Haru frequently responded to or back channeled the others’ utterances to show her willingness to listen (Heinz, 2003) as shown in Excerpt 4.26. In Line 1, Mimi started to talk about an argument presented in the debate meeting. Mimi’s utterance continued across Excerpt 4.26. In Lines 2, 5, and 7, Haru back channeled to Mimi to show attention and willingness to listen in Lines 2, 5, and 7.

Excerpt 4.26 (Group 1, Task 2, voice-chat)

1 Mimi: Introverted people usually don’t speak a lot=

2 Haru: Uh-huh.

3 Mimi: =so we cannot, people cannot know exactly introverted people, what they want.=

4 Haru: Uh-huh.
Mimi: =If introverted leaders… if the leaders are introverted people=

Haru: Uh-huh.

Mimi: =the leaders can encourage the introverted employees or co-workers’ position.

Haru: I, I understand.

In terms of respecting other members’ opinions, Haru frequently checked whether Mimi and Joey were comfortable with suggestions or comments that she had made. In Line 1 of Excerpt 4.27, Haru pointed out that it is the same case of adjective functions as a noun in the previous case and they used “the extroverted”. Then, she suggested using the same format of language as they did for “the introverted people” by adding “people” after “the extroverted”. Here, Haru tried to incorporate what Joey suggested previously and apply the same grammar rule (i.e., changing “the introverted” to “the introverted people”). Haru also asked Mimi if she was okay with the revision in Line 9. Then, Mimi accepted Haru’s suggestion in Line 10.

Excerpt 4.27 (Group 1, Task 2, voice-chat)

1 Haru: Are you okay here? Because it, it

((On Google Docs))

2 also omit [people in] extroverted

3 people. Here is okay? Or do you

wanna put people here?

5 Joey: Hyyyy. I’m not sure so=

6 Haru: [Okay. Maybe, we can put.

((Haru inserted “people” after “the
extroverted”.)

7 Joey: [=I don’t know how to say and-

8 Mimi: Oh, this one I wrote it? Uh.
Haru: Are you okay, Mimichan?

Mimi: Oh, yeah.

To help each other to write a summary, Haru provided suggestions, opinions, and information to write a summary. Excerpt 4.28 demonstrates an example of Haru offering a suggestion. In Line 1, Haru made a suggestion on grammar in what Mimi wrote. On Google Docs page, it was observed that Mimi revised “of” to “or” based on Haru’s suggestion. Then, Mimi let Haru know how she made a change in Line 4.

Excerpt 4.28 (Group 1, Task 1, text-chat)
1 Haru: currency of super currency
2 sounds like a bit weird for me
   ((Mimi replaced “f” with “r”. (of-> or))
3 Haru: it's good thanks mimi
4 Mimi: of-> or

(On Google Docs)

*Proposition

Hypothetical single global currency orf super currency, as the proposed terra or the DEY, produced and supported by a central bank which is used for all transactions around the world, regardless of the nationality of the entities involved in the transaction. A single currency would not be subject to exchange rate fluctuations because there would be no competing currencies to exchange against.

Not only did Haru offer help to others but also Haru asked other members for help, information, opinions, and suggestions. This behavior coincided with Haru’s goal: to help each other to write a summary. Haru did not try to be “the expert” who usually assists or encourages others to participate but she saw other group members as her collaborators. Excerpt 4.29 shows
an example of Haru asking Mimi for information about the debate. In Lines 1 and 2, Haru asked Mimi to clarify the meaning of the sentence “the amount of resources will determine”. Then, Mimi explained to Haru that “resources” meant “natural resources” in Line 3. Haru expressed her appreciation of Mimi’s help in Line 5.

Excerpt 4.29 (Group 1, Task 1, text-chat)

1 Haru: what does “the amount of resources will determine?”
2 what does it mean?
3 Mimi: kind of nature resources such as gas,
4 Haru: did he mention that? I might not understand
5 thanks

To help the others writing the summary, Haru facilitated the writing activity by suggesting what they should do next. In Lines 1 to 3 of Excerpt 4.30, Haru asked indirectly if they remembered their debate parts and wanted to work on them.

Excerpt 4.30 (Group 1, Task 1, text-chat)

1 Haru: Joey and mimi mentioned the definition.
2 do you guys remember
3 what you said?
4 Joey: yeah,
5 Mimi: I would like to write the definition of my position.

As discussed previously, Haru tried to mediate when there was a disagreement between Mimi and Joey by finding common ground so that they could work together (see Excerpt 4.20). Not only did Haru’s goals and actions influence the group’s interaction patterns but also how their individual goals interacted with others’ goals. Haru’s intention to be a facilitator was recognized
by Mimi and Joey. Joey acknowledged that her suggestions about what to do next were useful, and Mimi appreciated Haru’s leadership and suggestions for outlining the summary. Their shared understanding and positive attitudes toward Haru’s goal-directed actions allowed her to play the role of facilitator.

b) Mimi’s goals and their influences on interaction

Mimi’s previous experience with her group members in Task 1 reshaped her goal for Task 2. Her individual task goals were to review and learn about the debate content. To this end, she discussed and checked the content with the others in her group. In the stimulated-recall interview, Mimi reported, “Until I did the first task, I didn’t realize that I could check with others if what I knew about debate was correct (translated from Korean).” After she realized that the others would help her with her questions, she revised and specified one of her goals from “to review the debate content” to “to check the content debate with others,” realizing the benefits of group work. She often invited other members to check and correct what she wrote, intending to show her appreciation of their comments as shown Excerpt 4.31. Through Lines 1, 3, and 5, Mimi was explaining what she did. In Line 7, Mimi informed others to feel free to fix or add some more information on her writing. This offer was appreciated by Haru in Line 8.

Excerpt 4.31 (Group 1, Task 2, voice-chat)

1  Mimi: I just gave outline about=

2  Haru: Yes, yes. Cool.

3  Mimi: =first speaker’s=

4  Haru: Uh-huh,

5  Mimi: =opinion.

6  Haru: Yes.
Mimi: And then, you guys can feel free to fix or add more information.

Haru: Thank you so much.

Mimi: You’re welcome.

During the stimulated-recall interview, Mimi mentioned that she knew that some people would feel bad about fixing what other people wrote. She hoped that Haru and Joey would give her immediate feedback without feeling bad so as not to waste time thinking about how issues should be addressed.

Mimi frequently checked the debate content with the others in Task 2. For example, before she wrote, Mimi said out loud what she would write to check whether her understanding of the debate content was correct. In Lines 1, 2, and 4 of Excerpt 4.32, Mimi explained a debate point to check whether it made sense. Haru confirmed that she understood what Mimi had said in Line 7. Mimi then started to work on the summary writing.

Excerpt 4.32 (Group 1, Task 2, voice-chat)

1 Mimi: So that the introverted leaders can encourage the introverted people=

2 Haru: Uh-huh.

3 Mimi: =or co-workers to speak out.

4 Haru: So…uh…okay, okay.

5 Mimi: Do you understand what I’m saying?

6 Haru: Yes, I understand.

Also, Mimi checked the language with others. In these episodes, mostly, Mimi discussed grammar points or word choices with Haru and Joey. In Lines 6 and 7 of Excerpt 4.33, from Lines 1 to 4, Mimi tried to clarify if “have to” meant “should” in Haru’s writing. Then, Mimi
asked the same question again to draw Haru’s attention to use of the modal “have to” in Lines 6 and 7. Haru expressed her realization by saying “ah!” and she revised her sentence by saying, “they can” in Line 8. Mimi agreed to Haru’s revision in Line 9. Haru thanked Mimi in Line 10 and she revised the sentence according to what they discussed.

Excerpt 4.33 (Group 1, Task 2, voice-chat)

1. Mimi: And also “more people the leaders know, more chances they have… to expand.” You mean, should expand?
3. Mimi: So you mean “have to” mean should?
4. Haru: Ah! They can.
5. Mimi: Yeah.

(On Google Docs)

Network is also important for business. Since extroverts are outgoing and open themselves, it’s easy to expand the circle of acquaintance. More people the leaders know, more chances they can have to expand the business.

Mimi’s action of seeking peer feedback seemed to encourage Haru and Joey to give feedback on what Mimi wrote. As shown in Table 4.8, frequency counts of feedback episodes where participants provided peer feedback showed that Mimi received the most comments on what she wrote (18 out of 30 cases) across the two tasks. Also, Mimi’s more active participation in Task 2 was evident from Mimi’s increased initiation of decision-making episodes. Mostly, Mimi initiated decision-making episodes by requesting confirmation or offering suggestions about the summary (see Table 4.5).
Table 4.8

Feedback on Each Other’s Writing

<table>
<thead>
<tr>
<th>Feedback on each other’s writing (From whom to whom)</th>
<th>Task 1 (Number of cases)</th>
<th>Task 2 (Number of cases)</th>
<th>Total number of cases</th>
<th>Total amount of feedback each participant received</th>
<th>Total amount of feedback each participant gave</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mimi-&gt; Haru</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>Haru: 5⁸</td>
<td>Haru: 14⁹</td>
</tr>
<tr>
<td>Haru -&gt; Mimi</td>
<td>3</td>
<td>5</td>
<td>8</td>
<td>Mimi: 18</td>
<td>Mimi: 4</td>
</tr>
<tr>
<td>Joey-&gt; Mimi</td>
<td>7</td>
<td>3</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mimi-&gt; Joey</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>Joey: 7</td>
<td>Joey: 12</td>
</tr>
<tr>
<td>Haru-&gt; Joey</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Joey-&gt; Haru</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

c) Joey’s goals and their influences on interaction

Joey’s goals across both tasks were to review the details of the debate and to document it. He reported that he wanted to have a record of the debates because he hoped to retain the knowledge and English expressions that he had learned. He could document the content by participating in the collaborative summary writing, which also offered him an opportunity to review and learn about the detailed debate content.

Joey discussed the content of the debate and the procedures for writing. In Lines 1 and 2 of Excerpt 4.34, Joey informed others that what he was writing is an argument from the second speaker of proposition not the opposition team. Haru confirmed that they would keep Joey’s writing as it was previously in Lines 3 and 4. After the discussion, Joey added, “*Second proposition speaker*” on Google Docs to make it clear to others about the section he was writing about.

---

⁸ This is the sum of the feedback that Haru received both from Mimi (3) and Joey (2).
⁹ This is the sum of feedback that Haru gave both to Mimi (3) and Joey (2).
Excerpt 4.34 (Group 1, Task 1, text-chat) ((On Google Docs))

1  Joey: the second point is actually our // Debate points //</p>
2  second speaker (Erica) mentioned *First proposition speaker
3  Haru: okay so maybe we can put it for The first advantage of having a world currency
4  the second speaker is that people would not have to change money
((Joey put “* Second proposition speaker “on
Google Docs))

* Second proposition speaker
Secondly, such a currency would not suffer from inflation, which has had disastrous effects for economies.

Also, Joey checked the language in the summary with other members. For example, he asked questions about expressions that were used in the debate as shown in Excerpt 4.35. Joey asked the meaning of “people-person” in Line 1 and Haru explained it to him in Line 4. Joey showed that he understood it in Line 5.

Excerpt 4.35 (Group 1, Task 2, voice-chat)

1  Joey: 1, 2, 3 points. “Extroverted are people-person”? What is that?
2  Haru: People-person.
3  Joey: People-person.
4  Haru: People-person is very outgoing person.
5  Joey: Ah! Yeah, yeah. I see. And ((cough)) okay, okay.

In addition, Joey often asked others in the group what he should do for the summary. He
seemed to be trying to figure out what he ought to do in the tasks, a point he confirmed in his stimulated-recall interview. He often checked this with Haru, who frequently responded to his questions. As shown in Excerpt 4.36, Joey seemed unsure about how the summary needed to be done, and so he tried to ask other members in Lines 1 and 3. Haru answered his question in Line 4. Although he acknowledged Haru’s suggestion, Joey seemed uncertain about what he needed to do from his response in Line 5. In the stimulated-recall interview, he explained that he was not sure about his role in the task.

Excerpt 4.36 (Group 1, Task 2, voice-chat)

1. Joey: I don’t know but should we=
2. Haru: Yes?
3. Joey: =summarize everything we did? Or-
4. Haru: Yes, as much as you remember.

Also, Joey contributed to the task by making comments on grammar, punctuation, and other writing mechanics in the summary. In Lines 5 and 6 of Excerpt 4.37, he suggested putting a comma. Then he combined two sentences, “Extrovert is people person” and “And business is dealing with people” by inserting a comma between the two sentences and lowering the case of “a” in “and” to avoid starting a sentence with “and”.

Excerpt 4.37 (Group 1, Task 2, voice-chat)

2. Haru: Yes! 1. Extrovert is people-person, and business
3. Joey: uh… is dealing with people.
4. Haru: You can, you can edit.
5 Joey: Yeah, edit here actually. Instead of the...We need comma here and yeah. ((Joey lowered the case of “A” to “a” and replaced a period with a comma to combine the two sentences.))

6 Haru: Okay.

Joey’s goals and goal-directed actions seemed to remain unchanged over the two tasks. For example, Joey kept providing comments on language. However, he seemed to change the way he interacted with others over the two tasks, taking on a more collaborative approach in the second task. Whereas he tended to make direct comments in Task 1, in Task 2 Joey initiated decision-making episodes by requesting other members’ permission, opinions, and suggestions on the summary.

4.4) Other factors mediating peer interaction in web-based collaborative writing

Using Engeström’s expanded activity model (1987/2015), six components of web-based collaborative writing activity were identified, leading to the “outcome” of a debate summary, as shown in Figure 4.2. For example, the English language, computers, Google Docs, two modes of CMC, online dictionary, spell checker, and participants’ notes were the instruments that the group members (the subjects) used to construct the summaries and achieve their individual goals on the task (the objects).

Episodes of on- and about-task talk, coded previously to determine the group’s patterns of interaction were analyzed to identify these six components of the collaborative writing activity and determine if they facilitated or constrained the collaborative writing activity. Beside participants’ goals and goal-directed actions discussed previously, seven factors that influenced
the quality of collaboration were found, as shown in Figure 4.2, namely (a) modes of communication, (b) task representations, (c) matches/mismatches between participants’ self and other-perceived roles, (d) perceptions of peer feedback, (e) participants’ perceptions of group work, (f) familiarity with debate topics, and (g) technical glitches.

Figure 4.2 Group 1’s activity system of synchronous web-based collaborative summary writing with mediating factors indicated in boldface

4.4.1) Mode of communication

Switching the mode of communication from text-chat to voice-chat appears to have facilitated these participants’ engagement in the collaborative summary. All participants’ contributions increased markedly from Task 1 to 2 in the number of turns, the total number of
words in turns, and words per turn. Also, the participants tended to initiate more decision-making
episodes when they communicated with voice-chat compared to text-chat. They reviewed and
edited the debate summary together by taking turns to read it out loud.

Indeed, the participants all reported that they preferred voice-chat to text-chat due to its
instantaneous and interactive nature. Joey showed a particularly strong preference for voice-chat,
observing that he could express his thoughts and opinions better by talking to others than by
writing and reading in English. He felt frustrated communicating via text-chat because he could
not hear other people and he needed to write a lot to explain things (cf. Hamano-Bunce, 2011).

Excerpt 4.38 (Group 1, Task 1, text-chat)
1 Haru: Joey let's stop there and wait for mimi's definition
2 Mimi: thanks….kkk I need to get my document from hyeyoon.
3 Hold on
4 Haru: Oh mimi, I have the date, don't you mind me writing down for you?
5 Hey joey, stop there
6 I have the data
7 Mimi: hahaha
8 Haru: mimi I will write down for you
9 Joey please stop there
10 Mimi: oh I see.
11 thanks.
12 Joey: stop? i have more

Excerpt 4.38 demonstrates an occasion that Haru tried to get Joey’s attention by texting
him a few times. In Line 1, Haru suggested Joey wait till Mimi finished her part. However, Haru
noticed that Joey kept writing. So, she messaged him two more times in Lines 5 and 9 to ask him to stop writing. Finally, she got a response from Joey in Line 12, but he seemed not to know why Haru wanted him to stop in Line 12. In the stimulated-recall interview, Mimi commented, “It was difficult because Joey only focused on his writing but didn’t check what we said on the text-chat window. I didn’t know what he was doing but he kept doing things without telling us” (translated from Korean).

Along with his strong preference to voice-chat, Joey seemed to become more responsive and helpful when he communicated with others via voice-chat in Task 2. As reported in Section 4.3.1.1 (pattern of contribution), Joey’s number of the words per turn increased the most among the three participants indicating his increased contributions in Task 2. Also, Haru said, “Joey was, I think, this time since we could talk [to each other], so it was very helpful to remember [about the content of the debate] together.”

4.4.2) Task representation

Collaborative summary writing activity was also mediated by an implicit set of rules that regulated and guided the subjects’ actions and interactions. Notably, different understandings of rules about how to write a debate summary led to contradictions in the group’s activity system. While Haru and Mimi seemed to agree that they should summarize the main points of the debate, Joey was not sure whether they had to write exactly what had been debated or whether they could add other details to make the summary more complete. It was evident from Joey’s attempts to ask others what he needed to do as captured in Line 6 of the Excerpt 4.39.

Excerpt 4.39 (Group 1, Task 1, text-chat)

1 Joey: exactly the same? or can i change slightly?
In the stimulated-recall interview, Mimi mentioned what she thought a summary is differed from what her group actually did. She said that summary writing is a sort of test evaluating how she understood what other members said in the debate, like a listening comprehension test. However, group members decided to write their own debate points first before writing about another member’s points. Also, Haru had a different idea about a debate summary. She seemed to focus on the main arguments discussed in the meeting rather than small details of the debate meetings. Haru mentioned that each member seemed to have different understandings about how to write a debate summary.

Moreover, participants had different understandings of whether to focus on meaning or language forms. Mimi stated that reporting what had been discussed in the debate meeting was more important than focusing on minor grammar points. In contrast, Haru and Joey shared the belief that they should correct grammar in their debate summaries. Joey tried to provide feedback on grammar in his attempts to achieve his goal of documenting the debate and in responses to Mimi’s requests for feedback. Haru also asked the others to read and check what each person wrote. In the stimulated-recall, Haru said, “I think Mimi said grammar is not the point in this case. But I kind of wanted to make sure that the grammar is correct as well.” Interestingly, Haru did not express her opinion on grammar correction to the group. She explained that she tried to
respect both members’ opinions by not taking sides, and she tried to incorporate opinions from both of them when she made suggestions.

4.4.3) Matches/mismatches between participants’ self- and other-perceived roles

Each participant played certain roles in Group 1’s collaborative writing process. In the stimulated-recall interviews, participants were asked to identify their own and other members’ contributions to the tasks. I observed instances in which the group members’ perceived roles matched or did not match their self-perceived roles. Participants’ self-perceived roles matched with other-perceived roles when others acknowledged and responded to them positively. For example, Haru’s attempts to facilitate the logistics of the tasks were recognized by both Joey and Mimi. Their recognition and positive attitudes toward Haru’s leadership allowed her to play the role of facilitator.

On the contrary, sometimes participants’ self-perceived roles did not match the other-perceived roles. For instance, Haru and Mimi both recognized Joey’s contributions regarding grammar correction, but they viewed them differently. Haru acknowledged Joey’s contribution by commenting that “He was good at correcting grammar mistakes.” However, Mimi only selectively accepted Joey’s comments and felt that some were mediocre or undesirable. Sometimes, Joey’s comments on what Mimi wrote created a lengthy discussion between them. Haru then intervened and mediated the conflicts by suggesting alternatives or incorporating both sets of comments.

4.4.4) Participants’ perceptions of peer feedback
From the screen-recording data, Mimi revised the summary according to Haru’s and Joey’s suggestions. She usually monitored Haru’s and Joey’s text-chat messages and fixed the text without saying anything, demonstrating her silent agreement. Interestingly, these attempts were observed only in Task 1 and became less frequent towards the end of Task 1. During the stimulated-recall interview, Mimi commented that she did not appreciate Joey’s way of interacting with others. She observed that Joey seemed to like to take the lead for the group work. However, she said, “Joey had not reached that level [of English to be a leader].” She also noted that Joey later made frequent comments on minor grammar issues but did not provide sufficient reasons for the revisions he proposed. Consequently, Mimi became selective in accepting Joey’s comments.

Excerpt 4.40 illustrates how Mimi reflected on her peers’ comments on what she wrote. Mimi asked in Line 1 whether Haru and Joey had ideas to replace the word “quality” in what she wrote. Haru responded in Lines 3 to 7 by suggesting adding the word “strong”. In the stimulated-recall interview, Haru commented that she suggested Mimi keep both “high quality” and “strong” because she understood Mimi’s intention. Mimi wanted to emphasize that introverts pursue having quality relationships by putting effort into building trust with their business partners. Haru also mentioned that she wished to include the suggestion that Joey made. Joey proposed to Mimi that she should replace “high quality” with “strong” in Line 8. Finally, Mimi seemed to make a compromise between Joey’s suggestion and her own idea by keeping both “strong” and “high quality” in what she wrote. Haru also supported this idea to help Mimi to make the decision.

Excerpt 4.40 (Group 1, Task 2, voice-chat)

1 Mimi: Do you have any idea about ((On Google Docs))
instead of “quality”?

Haru: Maybe, I…I may suggest “their network is strong and high qualities because it is made by their accomplishment”. Because if it is, there is only high quality-

((Haru added “strong and” to Mimi’s sentence.))

Joey: I guess, strong. “Strong” is better.

Yeah. Not “high-, high quality”.

Further, Joey commented that he was not confident about his group’s decisions regarding language forms because all three of them were ESL learners. During his stimulated-recall interview when Joey was asked to evaluate the quality of the summary, he said, “Grammar of the summary may not be that good because English is our second language.” To resolve his uncertainty about the quality of the summary writing, Joey sought my advice. It seemed that Mimi and Joey did not feel confident about the quality of peer feedback.

4.4.5) Participants’ perceptions of group work

Participants’ perceptions of group work influenced their interaction patterns and conversely their group interaction also influenced the participants’ perceptions of group work. Haru and Mimi reported that they preferred to work individually while Joey said that he
preferred to work as a group. However, Haru and Mimi’s perceptions of group work seemed to change at the end of their collaborative writing tasks. Haru said she likes to work individually because it saves her time and she doesn’t need to worry about how other people are doing. She seemed to like taking charge of and organizing the work in her own way. However, at the same time, Haru acknowledged that she needed to learn to work with others since she cannot work by herself in reality. So, she took collaborative writing tasks as a learning opportunity to practice working in a group. After completing Task 2, Haru seemed to be more in favor of group work. Haru evaluated the second writing activity as “more positive and constructive work”. Haru seemed to notice and appreciate that other members of her group were flexible and helpful.

Also, Mimi reported that she prefers to work individually. She said that sometimes there are conflicts among group members and she was frustrated dealing with them. However, she tried to learn from others and it gave her the opportunity to learn about different perspectives. Mimi tried to accommodate what another group member suggested for her. I observed from the data that she tried to accept others’ feedback on her writing and to revise it accordingly during the writing tasks. Mimi became more open-minded to group work over time; in the second stimulated-recall interview, she said that she realized the advantages of group work, which are the improvement of summary content and quality of writing, override the disadvantages of group work.

Joey was the one who expressed his willingness to working in a group. He mentioned that he felt more responsible when he was assigned to a task in a group rather than working alone. Also, he expressed his preference for group work by saying, “I always think that group work is beneficial” (translated from Korean). However, he mentioned that the most important factor for him to work well in a group is working with compatible people who get along well and have
similar working styles. Joey explained that he and his group members would waste time arguing if he could not find compatible people to work with. Joey appreciated the benefits of group work more after the second writing task. He mentioned that Haru and Mimi helped him to understand better about the debate arguments that other people said in the debate meeting.

In sum, Haru and Mimi preferred to work individually; however, they seemed to become more in favor of group work after experiencing collaborative tasks. For Joey, he was the proponent of group work, but he seemed to be selective about his collaborators. However, he seemed to appreciate group work more after the second task as he realized more benefits of group work through the activities.

4.4.6) Familiarity with debate topics

Familiarity with the debate topics was found to be another factor that influenced participants’ interactions. In the stimulated-recall interview, Mimi mentioned that Task 2, which was writing a debate summary about “whether introverts make better leaders” was easier to write and discuss comparing to Task 1 (i.e., summary of debate on one world currency) because she could relate this topic to herself. For example, Mimi mentioned that she could think about if she was extroverted or introverted and how these personality traits make better leaders.

A similar theme emerged in Joey’s stimulated-recall interview. After Task 1, Joey reported that the debate topic was a bit difficult because the topic was not familiar to him. He pointed out that debate members also struggled to present their arguments because one world currency was a new economic concept that the debate members were not familiar with. Thus, it was hard for Joey to summarize the content of the debate. By revisiting the recording of the debate meeting and my field notes, I recalled that we spent quite an amount of time trying to
understand the definition of one world currency and sample arguments presented on the debate resource website because one world currency was a fairly new concept to most of the group members. Joey commented that Task 2 was much easier to write a summary compared to Task 1 because of its familiarity. Also, he said that it was easy to understand and remember what other members said in the meeting.

4.4.7) Technical glitches

During Task 2, there were a few occasions in which what Mimi typed did not appear properly on Google Docs. I provided Mimi with technical support, and the problem was resolved. However, the same problem occurred a few times toward the end of the task. Haru and Joey helped Mimi by dictating what Mimi wished to write on Google Docs. In the stimulated-recall interview, Mimi commented, “I wished I didn’t have technical difficulties. I liked how we used Google Docs to write a summary very much, though (translated from Korean).”

Technical glitch seemed to constrain participants’ collaboration in writing at a glance. However, it was found that technical glitch also initiated some interactions among participants to help Mimi who had technical difficulty as shown in Excerpt 4.41.

Excerpt 4.41 (Group 1, Task 2, voice-chat)

1 Haru: “They can expand the”. Maybe here

2 is “they can expand business”? I don’t know.

3 Mimi: Yeah, you can do “their business” or something.

4 Haru: “Their”. Okay. 

5 (On Google Docs) Network is also important for business. Since extroverts are outgoing and open themselves, it’s easy to expand the circle of acquaintance.

6 More people the leaders know, more chances they can expand their the-business.
(Haru replaced “the” with “their”.)

In this excerpt, the group members were reading out loud the summary by taking turn to review what Mimi wrote as a group. At this moment, Mimi’s keyboard was not working properly so Haru volunteered to revise Mimi’s writing on behalf of Mimi. In Lines 1 to 3, Haru asked if “they can expand the business” or “they can expand business” was correct. Mimi suggested to put “their” instead of “the” and gave permission to Haru to revise in Lines 4 and 5 since Mimi couldn't do it herself. Then, Haru revised it as Mimi suggested.

4.5) Summary of emerging factors that mediated Group 1’s interactions

Including participants’ goals and goal-directed actions, eight factors appeared to mediate Group 1’s collaborative writing activity:

1) Participant’s goals and goal-directed actions

2) Modes of communication

3) Task representations

4) Matches/mismatch between self and other-perceived roles

5) Learners’ perception of peer feedback

6) Participants’ perceptions of group work

7) Familiarity with debate topics

8) Technical glitches

These mediating factors can be grouped into the three domains that involved individual, instrumental, and task factors, as shown in Table 4.9. Individual factors are composed of participants’ goals, goal-directed actions, and their perceptions of group work and peer feedback.
Instrumental factors are about the use of collaborative writing tools. Task factors include task representation and familiarity with the debate topic.

Table 4.9

Three Domains and Sub-categories of Factors Mediating Collaborative Writing

<table>
<thead>
<tr>
<th>Factors mediating collaboration</th>
<th>Sub-category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Individual factors</strong></td>
<td>a) Participant’s goals and goal-directed actions</td>
</tr>
<tr>
<td></td>
<td>b) Matches/mismatches between self and other-perceived roles</td>
</tr>
<tr>
<td></td>
<td>c) Participants’ perceptions of group work</td>
</tr>
<tr>
<td></td>
<td>d) Learners’ perception of peer feedback</td>
</tr>
<tr>
<td><strong>Instrumental factors</strong></td>
<td>a) Modes of communication</td>
</tr>
<tr>
<td></td>
<td>b) Technical glitches</td>
</tr>
<tr>
<td><strong>Task factors</strong></td>
<td>a) Task representation</td>
</tr>
<tr>
<td></td>
<td>b) Familiarity with debate topics</td>
</tr>
</tbody>
</table>

In summary, the interaction pattern of Group 1 was identified as *facilitator/participants* in Task 1, similar to expert/novice and collaborative patterns. In Task 2, their interactions were classified as *collaborative*. Haru’s goal of helping the others in the group to write a summary encouraged her to facilitate the process of writing. In turn, Haru’s goals and goal-directed actions, as well as other members’ understanding and appreciation of Haru’s role, shaped the facilitator-participants pattern in Task 1. This interaction pattern also reciprocally influenced at least one other individual’s goal, as Mimi revised her initial goal from “to review the debate content” to “to check the content debate with others.” In addition to individual goals and goal-directed actions, the mode of communication, task representation, matches/mismatches between
participants’ self-perceived and other-perceived roles, learners’ perceptions of peer feedback and group work, familiarity with debate topics, and technical glitches all influenced the quality of the present participants’ collaborations. In Chapter 5, these mediating factors will be compared to the data of the remaining three groups to see if these mediating factors also influenced other groups’ collaborative writing activities. Also, the interaction patterns of three groups will be identified.
Chapter 5: Results for the Three Remaining Groups

This chapter reports results from analyses of the interaction patterns of Groups 2, 3, and 4. Participants’ goals in the summary writing task are described. Next, factors that mediated participant’s collaborative writing are presented by comparing them to the mediating factors found in the analysis of the focal group in Chapter 4. Participants’ goals and goal-directed actions are considered as one of the mediating factors when they influenced, or, conversely, had influence from, the group interactions.

5.1) Interaction patterns

5.1.1) Group 2

5.1.1.1) Patterns of contribution

Group 2 consisted of Yuko, Cary, and Lauren, and they wrote three collaborative summaries, as described in Chapter 3. As shown in Table 5.1, Yuko took the most turns in both Tasks 1 and 3 while Carey took the most turns in Task 2. Among them, Lauren distinctively spoke the most words per turn, in Tasks 1 and 2. In particular, she took turns that were almost twice as long as those of the other members in Task 2. In terms of the amount of writing, Lauren wrote the most words in Task 1, and Yuko wrote the most in Tasks 2 and 3. Carey wrote half the amount of what Yuko and Lauren wrote across the three tasks.

Table 5.1

Number of Words in Writing, Turns, and Words Per Turn (Group 2)

<table>
<thead>
<tr>
<th>Task</th>
<th>Participant</th>
<th>Total number of words written in a summary</th>
<th>Total number of turns (% of turns)</th>
<th>Total number of words in turns</th>
<th>Words per turn</th>
</tr>
</thead>
</table>


Note: Non-verbal turns were excluded from the total number of words and words per turn calculations.

5.1.1.2) Decision-making processes

As shown in Table 5.2, across the tasks, Group 2 participants initiated a similar number of decision-making episodes. They mostly reached a consensus when they were making a decision: for 100% of agreement in Tasks 1 and 3, and for 88.9% in Task 2.

Table 5.2

Decision-making Episodes: Agreement and Disagreement (Group 2)

<table>
<thead>
<tr>
<th>Task</th>
<th>Decision-making episodes</th>
<th>Reached agreement (% of agreement)</th>
<th>No response or did not reach agreement (% of disagreement)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Voice-chat)</td>
<td>13</td>
<td>13 (100%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>2 (Text-chat)</td>
<td>18</td>
<td>16 (88.9%)</td>
<td>2 (11.1%)</td>
</tr>
<tr>
<td>3 (Voice-chat)</td>
<td>18</td>
<td>18 (100%)</td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>

In Task 1, 13 cases of decision-making episodes were identified, as shown in Table 5.3. Carey initiated the most decision-making cases (7) followed by Lauren (4) and Yuko (2). They mostly began a decision-making episode by requesting information and making suggestions. As Table 5.4 displays, the decisions were made in the range of medium (9 cases) to high (4 cases)
interactivity. Most of the time, when a group member made a suggestion, the others agreed with the member.

For Task 2, the number of Group 2’s decision-making episodes increased slightly even though the number of turns drastically decreased. Lauren initiated more decision-making episodes than did Yuko and Carey. Lauren initiated decision-making episodes by making suggestions, stating her opinion, and requesting information regarding the debate summary. Participants interacted with each other mostly with low and medium interactivity regarding decision-making, as displayed in Table 5.4.

In Task 3, 18 cases of decision-making episodes were found. All three participants initiated similar amounts of the episodes. They made suggestions on the summary and requested information and suggestions.

Table 5.3

Initiation of Decision-making Episodes and Language Functions (Group 2)

<table>
<thead>
<tr>
<th>Task (Language)</th>
<th>Language function</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Voice-chat)</td>
<td><strong>Initiation</strong></td>
<td>Yuko Lauren Carey Total</td>
</tr>
<tr>
<td></td>
<td>Questioning</td>
<td>1 0 1 2</td>
</tr>
<tr>
<td></td>
<td>Requesting</td>
<td>1 2 0 3</td>
</tr>
<tr>
<td></td>
<td>Stating</td>
<td>0 0 0 0</td>
</tr>
<tr>
<td></td>
<td>Suggesting</td>
<td>0 2 6 8</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>2 4 7 13</td>
</tr>
<tr>
<td>2 (Text-chat)</td>
<td><strong>Initiation</strong></td>
<td>Yuko Lauren Carey Total</td>
</tr>
<tr>
<td></td>
<td>Questioning</td>
<td>0 0 0 0</td>
</tr>
<tr>
<td></td>
<td>Requesting</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td></td>
<td>Stating</td>
<td>4 4 3 11</td>
</tr>
<tr>
<td></td>
<td>Suggesting</td>
<td>1 3 0 4</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>5 8 5 18</td>
</tr>
<tr>
<td>3 (Voice-chat)</td>
<td><strong>Initiation</strong></td>
<td>Yuko Lauren Carey Total</td>
</tr>
<tr>
<td></td>
<td>Questioning</td>
<td>0 0 0 0</td>
</tr>
<tr>
<td></td>
<td>Requesting</td>
<td>4 1 3 8</td>
</tr>
<tr>
<td></td>
<td>Stating</td>
<td>1 1 1 3</td>
</tr>
<tr>
<td></td>
<td>Suggesting</td>
<td>0 5 2 7</td>
</tr>
</tbody>
</table>
Table 5.4

Level of Engagement in the Resolution of Decision-making Episodes (Group 2)

<table>
<thead>
<tr>
<th>Task</th>
<th>Interactive/Low</th>
<th>Interactive/Medium</th>
<th>Interactive/High</th>
<th>No Response</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Voice-chat)</td>
<td>0 (0 %)</td>
<td>9 (69.2%)</td>
<td>4 (30.8%)</td>
<td>0 (0%)</td>
<td>13</td>
</tr>
<tr>
<td>2 (Text-chat)</td>
<td>0 (0%)</td>
<td>12 (66.7%)</td>
<td>4 (22.2%)</td>
<td>2 (11.1%)</td>
<td>18</td>
</tr>
<tr>
<td>3 (Voice-chat)</td>
<td>1 (5.6%)</td>
<td>11 (61.1%)</td>
<td>6 (33.3%)</td>
<td>0 (0%)</td>
<td>18</td>
</tr>
</tbody>
</table>

5.1.1.3) Interaction patterns of Group 2

Across the three tasks, the interaction patterns of Group 2 were identified as

*Collaborative*, as shown in Figure 5.1. However, the ways in which they collaborated and how they approached summary writing changed slightly over the three tasks.

![Interaction Patterns Diagram](image)

*Figure 5.1 Interaction patterns of Group 2*
a) Task 1: Collaborative

In the beginning of their summary writing for Task 1, Group 2 decided to write a summary together. By taking turns, each member played a role as a scribe and dictating or (re)organizing what others said to include in the summary. This activity was only observed in Task 1. Excerpt 5.1 exemplifies how participants played the scribe and speaker roles.

Excerpt 5.1 (Group 2, Task 1, voice-chat)

1Carey: °Uh, they have to°, they have to
2show, they have to show-
3Yuko: Oh, okay. Show?
4Carey: Behavior. Hhhh. I don’t know.
5Yuko: Uh, hhh.
6Yuko: They…they have to… well
7behave?
8Carey: Show…uh=
9Yuko: They have to-
10Carey: Show…uh=
11Lauren: Hhh.
12Carey: =good behavior.
13Lauren: Yeah.
14Yuko: Is it right?
15Carey: Yeah.

((Yuko wrote “good behavior.”))
Excerpt 5.1 shows that it was Yuko’s turn to play a scribe role, and Carey gave a suggestion for what to include in the summary in Lines 1 and 2. Then, Yuko wrote “show” on the Google Docs by following Carey’s proposal. In Line 4, Carey tried to suggest to Yuko that she should write “(good) behavior” but she was not sure. Then, Lauren proposed, “They have to well behaved” in Lines 6 and 7. Yuko repeated “they have to” and Carey, finally, suggested “show good behavior” in Lines 10 and 12. Lauren agreed with Carey’s proposal in Line 13. Yuko asked if what she wrote was corrected in Line 14 and Carey confirmed it in Line 15. This excerpt also shows how these participants added onto each other’s ideas and co-constructed the summary writing, for example, as Carey did in Line 4 and Lauren did in Lines 7 and 8. This episode was identified as collaborative completion in Storch’s (2001) terms, a behavior that is evident in collaborative pairs.

As mentioned previously, Lauren spoke the most words per turn in Task 1. In her turns, Lauren often shared information that she recalled from the debate meeting. In Excerpt 5.2, Yuko and Lauren were talking about Yuko’s argument points in the debate. In Line 2, Lauren added the other point that Yuko had mentioned in the debate meeting. Yuko agreed to what Lauren said in Line 3. Lauren kept sharing what she remembered about Yuko’s arguments through Lines 4, 6, and 8.

Excerpt 5.2 (Group 2, Task 1, voice-chat)

1 Yuko: It is like a definition of the privacy, I, I talked about.
2 Lauren: °And°…and then you have mentioned that to see clear what they are doing.
3 Yuko: Yeah.
4 Lauren: Yeah, if we-
5 Yuko: Or-.
Lauren: And then they have to behave, well behave.

Yuko: Uh-huh. Yes.

Lauren: Because they are the ones who make rules… and things like that.

Yuko: Yeah.

Carey seemed to participate the least in both her quantity of writing and verbal interactions. However, when mutuality is considered, Carey initiated the most decision-making episodes in Task 1 and actively participated in making decisions, as shown in Excerpt 5.3.

Excerpt 5.3 (Group 2, Task 1, voice-chat)

Carey: Uh…I think that’s enough.

Lauren: Yep.

Yuko: Yeah.

Lauren: It’ good. Hhh.

Yuko: Hhhh.

Carey: Hhh. °Let’s move on°.

Yuko: So… do we move to the=

Carey: Uh-

Yuko: =against?

Lauren: Yep.

In this excerpt, the group members had just finished writing out the arguments of the proposition team. Carey commented that the summary of the proposition team’s arguments was good enough in Line 1. Lauren and Yuko agreed on Carey’s comment. In Line 6, Carey suggested to move on to the next section. Yuko asked if they should move on to the opposition’s arguments (Lines 7 and 9). Lauren answered Yuko’s question in Line 10.
b) Task 2: Collaborative

Different from Task 1, Group 2 decided to divide parts of the writing and to review them together after they finished their respective shares of writing. Every member took a similar number of turns in Task 2. Carey interacted more with other members than she did in Task 1. Although the number of turns in Task 2 was relatively few compared to that of Task 1, the number of decision-making episodes increased slightly. While most decision-making episodes in Task 1 were discussions of debate content or summary writing (16 out of 18 episodes), in Task 2, the episodes focused mostly on the group’s deciding procedures for the writing (13 out of 15 episodes). These episodes were resolved in the range of medium and high interactivity.

Lauren was the one who spoke the most per turn and initiated the most decision-making episodes. Often, she suggested or asked others what to do next. In Lines 1 and 2 of Excerpt 5.4, Lauren suggested dividing up the writing to work on the summary individually and then adding some missing information and editing the summary later. Yuko agreed with Lauren in Line 3. Carey informed others what she would do by following Lauren’s suggestion in Line 4.

Excerpt 5.4 (Group 2, Task 2, text-chat)

1 Lauren: it’s a lot to write today, and we don't talk on skype. can we just write things one each and chat to add or edit after one writing? what do you guys think?
2 Yuko: good idea
3 Carey: I will type what Carey’s point

The members of Group 2 co-constructed the debate summary by discussing what to add in the summary. Excerpt 5.5 shows how participants assisted one another to find the information they needed from each other. In line 1, Lauren informed other members that she had a question about Jill’s arguments. Carey (Lines 3 and 4) and Yuko (Line 7) seemed not sure about what Jill
said during the debate. Carey suggested others revise Jill’s arguments together by saying “let’s change” in Line 9. In Line 10, Yuko volunteered to add some parts to Jill’s arguments. Then, she wrote, “And by plastic surgery people could get faith.” On Google Docs. Through Lines 13 to 15, Lauren provided a keyword (i.e., something about atmosphere) that she recalled from her notes and asked others if this keyword reminded them of an idea. Also, Lauren told the others “atmosphere” might mean something about confidence in Lines 16 and 17. Yuko added to Lauren’s idea by saying that she remembered Jill used the word “faith”. Lauren agreed to Yuko’s idea in Line 20 and Carey told others what she added in the part (i.e., other possibility) on Google Docs. Then, Lauren elaborated more on Yuko and Carey’s idea through Lines 22 to 24. Yuko and Carey agreed with Lauren in Lines 25 and 26 respectively. Then, Yuko completed the last sentence by adding “to get faith” on Google Docs.

Excerpt 5.5 (Group 2, Task 2, text-chat)

1 Lauren: I have a question about Jill's part. ((On Google Docs))
2 Yuko: yup?
3 Carey: I don't understand what she said exactly
4 Lauren: in the second sentence,,
5 Carey: ....
6 Yuko: maybe..
7 Carey: haha
8 let's change
9 Yuko: I will add the last part.

3st speaker(Jill): If people buy more cosmetics, economic expense will increase and economic market also will grow up. Some people could buy better cosmetics instead of taking a cosmetic surgery. In the other word, if people get more desire of beauty and cosmetic surgery, our economic expense and market will be raised. It will be good for the government, too. And by plastic surgery people could get faith. Banning it will defeat other
((Yuko wrote “And by plastic surgery people could get faith.”))

11 Lauren: if that's what she said I must have gotten lost there.
12 and I have some memo something about atmosphere for her part
13 anybody got that point?
((Carey wrote “Banning it will defeat other possibilities of people.”))

16 Lauren: I'm assuming maybe that was about confidence or something?
17 Yuko: I remember she used the word, faith.
18 Lauren: yes true
19 Carey: other possibility too
20 Lauren: yeah. because they get faith for themselves, they become more cheerful or something like that?
21 Yuko: I think so.
22 Carey: Yes.
((Yuko added, “to get faith.”))
c) Task 3: Collaborative

Yuko both wrote the most amount of text and took the most number of turns in Task 3. Carey and Lauren took a similar number of turns in the third task. Carey wrote the least. There seems to be an imbalance between contribution of Yuko, and that of Lauren and Carey when only the quantity of writing contribution was considered. However, through examining the screen recording data it was found that when Yuko outlined a section, Carey and Lauren added little details to the summary and edited it.

Figure 5.2 Screenshot of Group 2’s Google Docs page (Task 3, voice-chat)

Figure 5.2 provides a snapshot of Group 2’s members’ contributions to the summary writing. Google Docs’ revision history displays the portion that each person wrote in different colors. Yuko’s writing was coded in peach, Lauren’s in purple, and Carey’s was in sky blue. In addressing the first and second paragraphs of the proposition team, in a section titled “Proponent”, marked by a red rectangle, it is evident that Yuko wrote two sentences including a
topic sentence. Then, Lauren and Carey added some supporting sentences and edited the paragraph.

During her stimulated-recall interview, Lauren identified her role as “an editor” while identifying Yuko’s role as “a writer”. Also, Carey mentioned that Yuko drafted a summary and Lauren and Carey checked the content and added some missing information. Regarding mutuality, the three participants initiated a similar number of decision-making episodes. They mostly made decisions about their shares of the writing, content, and language form in the summary; these episodes were resolved with medium and high interactivity.

Excerpt 5.6 (Group 2, Task 3, voice-chat)

1  Yuko: Who was the next to the…who was  ((On Google Docs))
2  the third speaker?  
3  Lauren: Third speaker was=  
4  Carey: [Sungho.]
5  Lauren: [=Sung, Sungho.]
6  Yuko: Oh, yes. Sung, sungho.  
    ((Yuko wrote “3rd speaker(Sunho).”))
7  Hh. How do you, do you know the
8  spelling? Sungho?
9  Carey: S-U-N-G-H-O.
10  Yuko: Oh.  
    ((Lauren added “g” to “Sunho”.)
11  Carey: Yeah, yeah. That looks okay.
12  Yuko: Okay?
Lauren: Yep.

Similar to Tasks 1 and 2, members of Group 2 closely assisted one another when a member requested help. Excerpt 5.6 displays how members engaged with each other’s contributions to resolving the problem. In Line 1, Yuko asked other members who the next speaker was. Simultaneous responses from Carey (Line 4) and Lauren (Line 5) indicate that they closely engaged with other (as in Storch, 2001). Yuko agreed with Lauren and Carey and repeated what others said (i.e., Sungho) in Line 6. Then, she wrote “3rd speaker(Sunho)” on the Google Docs. However, Yuko was not sure about the spelling of the name “Sungho”. She asked others about the spelling of “Sungho” in Lines 7 and 8. Then, Carey spelled it out for Yuko in Line 9. In Line 10, Yuko seemed to notice that she missed a letter “g” in the name “Sungho” as Carey spelled it out. Lauren added the letter “g” right after. Carey commented that the name “Sungho” looked okay now in Line 11. Yuko sought confirmation by saying “Okay?” in Line 12 and Lauren confirmed that the spelling of “Sungho” is correct in Line 13.

5.1.2) Group 3

5.1.2.1) Patterns of contribution

Group 3 members were Mike, Eunbie, and Jill, who wrote three summaries, as described in Chapter 3. As shown in Table 5.5, Eunbie wrote the most during all three tasks. Mike wrote the second most and Jill wrote the least. In Task 1, Jill took the most turns and had the longest turns. In Task 2, every member’s number of turns increased several times compared to Task 1. Among them, Mike took the most turns whereas Eunbie spoke the most. In Task 3, the number of their turns decreased by half of Task 2. Eunbie took the most turns while Jill took the longest turns. Across the three tasks no single person dominanted in their contributions to the discussions.
Table 5.5
Number of Words in Writing, Turns, and Words Per Turn (Group 3)

<table>
<thead>
<tr>
<th>Task</th>
<th>Participant</th>
<th>Total number of words written in a summary (% of writing contribution)</th>
<th>Total number of turns (% of turns)</th>
<th>Total number of words in turns</th>
<th>Words per turn</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Text-chat)</td>
<td>Mike</td>
<td>210 (35.78%)</td>
<td>34 (30.91%)</td>
<td>147</td>
<td>4.32</td>
</tr>
<tr>
<td></td>
<td>Eunbie</td>
<td>273 (46.51%)</td>
<td>31 (28.18)</td>
<td>247</td>
<td>7.97</td>
</tr>
<tr>
<td></td>
<td>Jill</td>
<td>104 (17.72%)</td>
<td>45 (40.91%)</td>
<td>402</td>
<td>8.93</td>
</tr>
<tr>
<td>2 (Voice-chat)</td>
<td>Mike</td>
<td>99 (20.12%)</td>
<td>133 (37.05%)</td>
<td>719</td>
<td>5.41</td>
</tr>
<tr>
<td></td>
<td>Eunbie</td>
<td>271 (55.08%)</td>
<td>115 (32.03%)</td>
<td>731</td>
<td>6.36</td>
</tr>
<tr>
<td></td>
<td>Jill</td>
<td>122 (24.80%)</td>
<td>111 (30.92%)</td>
<td>650</td>
<td>5.86</td>
</tr>
<tr>
<td>3 (Voice-chat)</td>
<td>Mike</td>
<td>218 (32.11%)</td>
<td>53 (29.44%)</td>
<td>188</td>
<td>3.55</td>
</tr>
<tr>
<td></td>
<td>Eunbie</td>
<td>343 (50.52%)</td>
<td>67 (37.22%)</td>
<td>278</td>
<td>4.15</td>
</tr>
<tr>
<td></td>
<td>Jill</td>
<td>118 (17.38%)</td>
<td>60 (33.33%)</td>
<td>375</td>
<td>6.25</td>
</tr>
</tbody>
</table>

5.1.2.2) Decision-making processes

Table 5.5 presents the number of decision-making episodes across three tasks and the extent to which episodes reached agreement. The number of decision-making episodes increased from 11 in Task 1 to 17 in Task 2 and the decisions were all resolved (100%). However, the number of decision-making episodes decreased in Task 3 by half compared to Task 2, and there was one case in which they did not reach agreement.

Table 5.6
Decision-making Episodes: Agreement and Disagreement (Group 3)

<table>
<thead>
<tr>
<th>Task</th>
<th>Decision-making episodes</th>
<th>Reached agreement (% of agreement)</th>
<th>Did not reach the agreement (% of disagreement)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Text-chat)</td>
<td>11</td>
<td>11 (100%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>2 (Voice-chat)</td>
<td>17</td>
<td>17 (100%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>3 (Voice-chat)</td>
<td>8</td>
<td>7 (87.5%)</td>
<td>1 (12.5%)</td>
</tr>
</tbody>
</table>
Across the three tasks, Eunbie initiated the most decision-making episodes, as shown in Table 5.7. She usually initiated these episodes by suggesting and requesting other’s opinions and making suggestions regarding procedures and content of the summaries. Mike and Jill initiated similar amounts of decision-making episodes. Often, Mike made suggestion regarding the summary writing and Jill tended to check how to proceed with the summary. These decision-making episodes were resolved with high interactivity in Task 1 and 2 while they were resolved with medium interactivity in Task 3, as shown in Table 5.8.

Table 5.7

Initiation of Decision-making Episodes and Language Functions (Group 3)

<table>
<thead>
<tr>
<th>Task</th>
<th>Language function</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Text-chat)</td>
<td><strong>Initiation</strong></td>
<td>Mike</td>
</tr>
<tr>
<td></td>
<td>Questioning</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Requesting</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Stating</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Suggesting</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal</strong></td>
<td>3</td>
</tr>
<tr>
<td>1 (Text-chat)</td>
<td></td>
<td>Eunbie</td>
</tr>
<tr>
<td></td>
<td>Questioning</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Requesting</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Stating</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Suggesting</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal</strong></td>
<td>6</td>
</tr>
<tr>
<td>1 (Text-chat)</td>
<td></td>
<td>Jill</td>
</tr>
<tr>
<td></td>
<td>Questioning</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Requesting</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Stating</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Suggesting</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal</strong></td>
<td>11</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task</th>
<th>Language function</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 (Voice-chat)</td>
<td><strong>Initiation</strong></td>
<td>Mike</td>
</tr>
<tr>
<td></td>
<td>Questioning</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Requesting</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Stating</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Suggesting</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal</strong></td>
<td>6</td>
</tr>
<tr>
<td>2 (Voice-chat)</td>
<td></td>
<td>Eunbie</td>
</tr>
<tr>
<td></td>
<td>Questioning</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Requesting</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Stating</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Suggesting</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal</strong></td>
<td>8</td>
</tr>
<tr>
<td>2 (Voice-chat)</td>
<td></td>
<td>Jill</td>
</tr>
<tr>
<td></td>
<td>Questioning</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Requesting</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Stating</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Suggesting</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal</strong></td>
<td>3</td>
</tr>
<tr>
<td>2 (Voice-chat)</td>
<td></td>
<td>Total</td>
</tr>
<tr>
<td></td>
<td>Questioning</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Requesting</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Stating</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Suggesting</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td>8</td>
</tr>
</tbody>
</table>

Table 5.8

Level of Engagement in the Resolution of Decision-making Episodes (Group 3)
5.1.2.3) Interaction patterns of Group 3

The interaction patterns of Group 3 in Tasks 1 and 2 were identified as *Collaborative* whereas in Task 3 they were found to be *Cooperative*, as shown in Figure 5.3.

\[\text{Interaction patterns of Group 3}\]

\[
\begin{array}{|c|c|c|c|c|}
\hline
\text{Task} & \text{Interactive/Low} & \text{Interactive/Medium} & \text{Interactive/High} & \text{No Response} & \text{Total} \\
\hline
1 \text{ (Text-chat)} & 1 (9.1\%) & 4 (36.4\%) & 6 (54.5\%) & 0 (0\%) & 11 \\
2 \text{ (Voice-chat)} & 1 (5.9\%) & 7 (41.2\%) & 9 (53\%) & 0 (0\%) & 17 \\
3 \text{ (Text-chat)} & 0 (0\%) & 6 (75\%) & 1 (12.5\%) & 1 (12.5\%) & 8 \\
\hline
\end{array}
\]

\[\text{Figure 5.3 Interaction patterns of Group 3}\]

\[\begin{align*}
\text{High mutuality} & \quad \text{High equality} \\
\text{Expert/Novice} & \quad \text{Collaborative} \\
\text{Dominant/Passive} & \quad \text{Cooperative} \\
\text{Low mutuality} & \quad \text{Low equality}
\end{align*}\]

\[\text{a) Task 1: Collaborative}\]

In terms of equality, Eunbie wrote the most, and Jill took the most turns and the longest turns. As shown in Table 5.7, Eunbie initiated few decision-making episodes although she contributed the most in text-chat. In Excerpt 5.7, Jill mostly took her turns to discuss the content of the debate as displayed in Line 1, and she informed other members what she had done and was going to do, as shown in Line 2. Sometimes, she copied some parts of text from the Google Docs' page as can be seen from Lines 3 and 4 of Excerpt 5.8.
Excerpt 5.7 (Group 3, Task 1, text-chat)

1 Jill: there are definition, main points, rebuttals, are used as debate steps.
2 so, i will erase the bottom for now. it was for mike.
3 Mike: yes!

Excerpt 5.8 (Group 3, Task 1, text-chat)

1 Jill: 3. rebuttals (to propositions' main points)
2 ok
3 i am going to try to match “3. Rebuttals (to opposition’s main points)” and “3. Rebuttals (to propositions’ main points)”.

Eleven decision-making episodes were initiated, during which Eunbie suggested the most (6 episodes). The decision-making episodes were resolved in the range of medium and high-interactivity. Excerpt 5.9 shows how group members helped one another.

Excerpt 5.9 (Group 3, Task 1, text-chat)

1 Eunbie: I would like to use point forms ((On Google Docs))
2 Mike: Yes. • Abc
3 I agree with that • Abc
4 Eunbie: It might be easier to summarize
5 out points
6 Mike: Yes.
7 Jill: point form is the one left
8 side, right? if so, yes, let’s use that
9 Mike: like this

((Mike wrote “• Abc” on the Google Docs))
Eunbie: Bulleted list. like mike is doing

Jill: i see!

Eunbie suggested to the group to use point form to summarize arguments of the debate in Line 1 and Mike agreed with her in Lines 2 and 3. Eunbie justified her suggestion in Lines 4 and 5 and Mike agreed to her suggestion once more in Line 6. Jill seemed unsure about what point form was, which she tried to clarify in Lines 7 and 8. Mike showed her what point form is and how they would use it on the Google Docs’ page by showing an example on Google Docs. Then, Eunbie attempted to help Jill by telling her to pay attention to what Mike was doing in Line 10. Finally, Jill understood what point form was in Line 11.

b) Task 2: Collaborative

The interaction pattern of Task 2 also was identified as collaborative. However, the number of each participant’s turns increased by three to four times in Task 2 compared to Task 1. As observed in the focal group (Group 1), this change may have been caused by the use of voice-chat and its instantaneous and interactive nature compared to text-chat. There were 17 decision-making episodes, which mostly Mike and Eunbie initiated. Participants mostly discussed the format of the summary and clarified the contents of the debate. These episodes were resolved in the range of medium and high interactivity.

With the benefits of voice-chat, occasions of Group 3 collaboratively engaging in the writing activity were observed more often. In Excerpt 5.10, Mike expressed confusion caused by the titles of the section in Lines 1 to 3. This confusion seemed to have been caused by the structure of the debate title: This house believes the Internet brings more harm than good. The title was not definitive (e.g., The Internet is harmful.) and the participants needed to decode the title and they needed to associate this information with who debated what. In Line 4, Jill tried to...
help Mike by clarifying that the Opposition team argued that the Internet is good. Then, Mike asked if rebuttals of opposition should be about advantages or disadvantages of the Internet in Lines 5 to 7. Again, Jill explained that Proposition team argued for disadvantages of the Internet and the Opposition team argued for benefits of the Internet in Lines 8, 9, 11, and 12. Mike agreed with Jill and asked a question regarding a rebuttal in Line 13. This time, Eunbie took a turn to explain that the rebuttal speaker [of the Proposition team] defended their position (i.e., Internet is harmful.) [by rebutting Opposition team’s arguments] through Lines 17, 18, 20, and 21. Finally, Mike’s confusion was resolved in Lines 19 and 22, and Jill also agreed with Eunbie in Line 24.

Excerpt 5.10 (Group 3, Task 2, voice-chat)

1 Mike: Yeah. This is little bit confusing.
2 Hmmmm… You guys have any idea to clarify this?
3 Jill: So… So opposition means… good.
4 Mike: Yeah. Opposition rebuttal. I’m really confused. Opposition rebuttal is good or bad?
5 Jill: So this topic means the Internet is harmful=
6 Mike: Yeah
7 Jill: =so proposition means harm and opposition means good, I think.
8 Mike: Yeah. How about the rebuttal-
9 Eunbie: But it said the third speaker. 

((On Google Docs))

3rd speakers (Rebuttals)

- Proposition:
  One of disadvantages is an addiction problem in which many people spend so many hours using the internet such as online games. There is a study which shows people averagely spend 22 hours a month using the internet.

- Opposition:
  Addiction to Internet could cause and make us lack of exercises. Our life can be unhealthy.
  Online shopping could destroy local shops. If people just keep on buying products through
15 Mike: Yeah. websites, local stores will need to be closed down.
16 Jill: Uh-
17 Eunbie: So the third speaker from the proposition=
18 Mike: Oh. I see, I see.
19 Eunbie: =is defending that the Internet is harmful.
20 Mike: Okay.
21 Eunbie: Right?
22 Mike: Okay.
23 Jill: Yeah.
24 Eunbie: Yeah.

Later in the same data, Group 3 wrote the arguments each team argued for, as shown in Excerpt 5.11. Mike added “Internet is good.” next to opposition. Then, Eunbie wrote “Internet is bad.” as she said it out loud in Line 1. Mike and Jill agreed with Eunbie in Lines 2 and 3, respectively. In Line 5, Mike suggested using the word “harmful”. In Line 6, Eunbie repeated what Mike said and incorporated his suggestion to the writing. Also, Jill agreed to Mike’s suggestion in Line 7.

Excerpt 5.11 (Group 3, Task 2, voice-chat)

((Mike wrote “Internet is good.”))
1 Eunbie: Internet is Bad. 3rd speakers (Rebuttals)
((Eunbie wrote “Internet is bad.”)) - Proposition (Internet is bad-harmful.)
2 Mike: Yeah. One of disadvantages is an addiction problem
3 Jill: Yeah in which many people spend so many hours
4 Eunbie: Is it? Hahaha. using the internet such as online games. There
5 Mike: Harmful? Haha.

6 Eunbie: Harmful.

((Eunbie changed “bad” to “harmful.”))

7 Jill: Yeah, I think so.

is a study which shows people averagely spend 22 hours a month using the internet.

- Opposition (Internet is good.)

Addiction to Internet could cause and make us lack of exercises. Our life can be unhealthy. Online shopping could destroy local shops. If people just keep on buying products through websites, local stores will need to be closed down.

c) Task 3: Cooperative

The interaction pattern of Task 3 was found to be cooperative. Participants focused on allocating their share of writing and showed little evidence of co-constructing or engaging with each other’s contributions. As found in Tan et al. (2010), this pattern seems unique to CMC contexts. As observed previously, the number of turns, total number of words per turn, and words per turn decreased almost by half in Task 3 even though participants used the same mode of communication (i.e., voice-chat) to write summaries in both Tasks 2 and 3. The mutuality of the group was relatively lower in Task 3 than in Tasks 1 and 2. The number of decision-making episodes was fewer and they were resolved mostly in medium interactivity whereas participants made more decisions collectively with high interactivity in Tasks 1 and 2. Excerpt 5.12 shows an example of Group 3 participants engaging with each other with medium interactivity.

Excerpt 5.12 (Group 3, Task 3, voice-chat)

1 Eunbie: Uh…I think we can, we can review together and just, think so. So, are you done

2 with your part?
Mike: Yep.

Eunbie: Okay. I think I’m done with mine, too.

Jill: Yeah, me, too.

Mike: Do we revise it together?

Eunbie: Yeah.

Jill: Yes.

Medium interactivity is defined as showing some involvement of two or three participants (Storch, 2001) in which a suggestion is followed by agreement. For example, Eunbie asked other members if they were done with their parts and suggested reviewing the summary together in Lines 1 and 2. Mike and Jill told her that they had completed their parts, respectively, in Lines 3 and 5. In Line 6, Mike asked the others if they wanted to proceed with what Eunbie had suggested then Eunbie and Jill agreed with Mike in Lines 7 and 8, respectively. Although they decided to revise the summary together, the groups members silently read and edited the summary individually.

Excerpt 5.13 (Group 3, Task 3, voice-chat)

((Eunbie wrote “1st Speaker” of Proposition team.))

((On Google Docs))

Date: September 25, 2013

Topic: This house believe that the advertising is harmful

1 Jill: Oh, we need formal date, first speaker-

((Eunbie wrote Date and Topic of the debate.))

2 Yeah… how was it? So….first speaker.

3 Mike: Hmm. First…..speaker

((Mike wrote “1st Speaker:, 2nd Speaker:, and 3rd Speaker” of Opposition.))

Proposition

1st Speaker (Definition):
((Mike also wrote “Proposition” and “Opposition”.)

((Jill wrote “(Definition)” next to “1st Speaker” of Proposition.))

4 Eunbie: Was it like this?
5 Mike: Hhhh. I have no idea.
6 Eunbie: Uh-
7 Jill: Mmm. Proposition… Okay. Let’s just
8 make it roughly and we can fix it later.
9 Eunbie: Okay.
10 Mike: Yeah.

Group 3 outlined the summary in the begging of the writing session and they wrote the section individually. In Excerpt 5.13, they tried to figure out the outline they would use for the second task. In Line 1, Jill suggested putting the date of the debate meeting. Eunbie put the date and the topic of the debate meeting. Mike put the section titles for the opposition team (e.g., “1st Speaker”) shortly after. Then, Jill added “definition” to “1st Speaker of Proposition team.”

These actions were done quickly without interacting with one another as if they were automatic. The participants seemed to set up a routine of debate summary writing although Mike was not sure if the outline was the same as last time in Line 5. Jill suggested fixing the format as they proceeded with the writing in Lines 7 and 8. Both Eunbie (Line 9) and Mike (Line 10) agreed with Jill’s suggestion. Then, each member took some sections to write. However, their interaction was minimal compared to the first two tasks. They talked to each other only when they had a question regarding dividing the share of writing.
5.1.3) Group 4

5.1.3.1) Patterns of contribution

Group 4 included Scott, Ryan, and Victoria, who wrote three summaries, as described in Chapter 3. As shown in Table 5.9, Scott wrote the most across the tasks. Ryan contributed the most to written and verbal communications for all three tasks while he contributed to the summary writing the least. Scott spoke the most words per turn across the three tasks. Victoria contributed to the written and verbal communication the least; however, her total number of turns increased distinctly in Task 3 compared to Tasks 1 and 2.

Table 5.9

Number of Words in Writing, Turns, and Words Per Turn (Group 4)

<table>
<thead>
<tr>
<th>Task</th>
<th>Participant</th>
<th>Total number of words written in a summary (% of writing contribution)</th>
<th>Total number of turns (% of turns)</th>
<th>Total number of words in turns</th>
<th>Words per turn</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Voice-chat)</td>
<td>Scott</td>
<td>483 (41.04%)</td>
<td>84 (35.74%)</td>
<td>934</td>
<td>11.10</td>
</tr>
<tr>
<td></td>
<td>Ryan</td>
<td>256 (21.75%)</td>
<td>112 (47.66%)</td>
<td>784</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Victoria</td>
<td>438 (37.21%)</td>
<td>39 (16.60%)</td>
<td>130</td>
<td>3.33</td>
</tr>
<tr>
<td>2 (Text-chat)</td>
<td>Scott</td>
<td>804 (52.14%)</td>
<td>42 (35.29%)</td>
<td>314</td>
<td>7.48</td>
</tr>
<tr>
<td></td>
<td>Ryan</td>
<td>318 (20.62%)</td>
<td>42 (35.29%)</td>
<td>180</td>
<td>4.29</td>
</tr>
<tr>
<td></td>
<td>Victoria</td>
<td>420 (27.24%)</td>
<td>35 (29.41%)</td>
<td>171</td>
<td>4.89</td>
</tr>
<tr>
<td>3 (Voice-chat)</td>
<td>Scott</td>
<td>719 (46.09%)</td>
<td>72 (25.26%)</td>
<td>650</td>
<td>9.03</td>
</tr>
<tr>
<td></td>
<td>Ryan</td>
<td>331 (21.22%)</td>
<td>130 (45.61%)</td>
<td>787</td>
<td>6.05</td>
</tr>
<tr>
<td></td>
<td>Victoria</td>
<td>510 (32.69%)</td>
<td>83 (29.12%)</td>
<td>344</td>
<td>4.14</td>
</tr>
</tbody>
</table>

5.1.3.2) Decision-making processes

Group 4 participants initiated the most decision-making episodes in Task 1 as seen in Table 5.10. The number of initiations decreased in Task 2 via text-chat by about half and it increased slightly in Task 3 with voice-chat. Almost all of their decision-making episodes
reached agreement (100% for Tasks 1 and 2, and 93% for Task 3). As displayed in Table 5.11, Scott initiated the most episodes in Task 1. Most of the decision-making episodes were resolved in the range of medium and high interactivity. In Task 2, Scott and Ryan initiated similar numbers of decision-making episodes, and these were resolved mostly with high interactivity. For Task 3, Scott initiated the most decision-making episodes. Victoria’s initiation of decision-making noticeably increased, and the total number of her turns increased distinctly in Task 3. Their decision-making episodes were resolved mostly with medium interactivity.

Table 5.10

Decision-making Episodes: Agreement and Disagreement (Group 4)

<table>
<thead>
<tr>
<th>Task</th>
<th>Decision-making episodes</th>
<th>Reached agreement (% of agreement)</th>
<th>Did not reach the agreement (% of disagreement)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Voice-chat)</td>
<td>23</td>
<td>23 (100%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>2 (Text-chat)</td>
<td>11</td>
<td>11 (100%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>3 (Voice-chat)</td>
<td>14</td>
<td>13 (92.9%)</td>
<td>1 (7.1%)</td>
</tr>
</tbody>
</table>

Table 5.11

Initiation of Decision-making Episodes and Language Functions (Group 4)

<table>
<thead>
<tr>
<th>Task</th>
<th>Language function</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Scott</td>
</tr>
<tr>
<td>1 (Voice-chat)</td>
<td><strong>Initiation</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Questioning</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Requesting</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Stating</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Suggesting</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal</strong></td>
<td>8</td>
</tr>
<tr>
<td>2 (Text-chat)</td>
<td><strong>Initiation</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Questioning</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Requesting</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Stating</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Suggesting</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal</strong></td>
<td>6</td>
</tr>
<tr>
<td>3 (Voice-chat)</td>
<td><strong>Initiation</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Questioning</td>
<td>1</td>
</tr>
</tbody>
</table>
Table 5.12

Level of Engagement in the Resolution of Decision-making Episodes (Group 4)

<table>
<thead>
<tr>
<th>Task</th>
<th>Interactive/Low</th>
<th>Interactive/Medium</th>
<th>Interactive/High</th>
<th>No Response</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Voice-chat)</td>
<td>0 (0%)</td>
<td>13 (56.52%)</td>
<td>10 (43.48%)</td>
<td>0 (0%)</td>
<td>23</td>
</tr>
<tr>
<td>2 (Text-chat)</td>
<td>0 (0%)</td>
<td>4 (36.36%)</td>
<td>7 (63.64%)</td>
<td>0 (0%)</td>
<td>11</td>
</tr>
<tr>
<td>3 (Voice-chat)</td>
<td>0 (0%)</td>
<td>9 (64.3%)</td>
<td>4 (28.6%)</td>
<td>1 (7.1%)</td>
<td>14</td>
</tr>
</tbody>
</table>

5.1.3.3) Interaction patterns of Group 4

As shown in Figure 5.4, the interaction patterns of Group 4 in Tasks 1 and 2 were identified as Leader/participants while in Task 3 they were classified as Collaborative.
a) Task 1: Leader-participants

The interaction pattern of Task 1 was identified as Leader-participants. Scott took a leadership role although the contributions of Scott and Ryan to Task 1 seemed similar. Scott was identified as the leader of Group 4 because he made frequent suggestions about the procedures of writing by using “let’s” as can be seen in Excerpt 5.14.

Excerpt 5.14 (Group 4, Task 1, voice-chat)

1 Scott: Okay, guys. Let’s, can we start from the start?
2 Ryan: Okay.
3 Scott: Need more time? Uh, let's, let’s recheck the first, first…paragraph.
4 Ryan: Yeah.

In addition, Scott discussed with Ryan regarding Ryan’s questions on format and procedures of the summary writing. He also suggested to Ryan what to do. In Lines 1 and 2 of Excerpt 5.15, Ryan asked Scott if they needed to write a summary like an essay rather than writing in point form. Scott informed Ryan that they needed to write the summary using full sentences in Line 3. Ryan asked again if making full sentences meant writing an essay in Line 4. Scott tried to answer Ryan’s question by offering what he thought about the task in Lines 5 and 6. Finally, Ryan agreed to what Scott offered in Line 7.

Excerpt 5.15 (Group 4, Task 1, voice-chat)

1 Ryan: I mean our final result, like summary thing like, we don’t need, we don’t write
2 down about essay, right?
3 Scott: Uh! No, no. The, the final form, we need to make full sentences.
4 Ryan: Uh, like essay?
Scott: I don’t, I don’t know but I will, I will, I will check with Hyeyoon later, but I think it is gonna be like a, yeah, looks like essay.

Ryan: Oh, okay.

Also, decision-making episodes were initiated by everybody, mostly Ryan and Scott in Task 1, while the decisions were made usually by Scott. In Excerpt 5.16, Ryan asked Scott a question regarding the style of the summary in Lines 1 and 2. Scott explained that Ryan can write simply what he remembered about the debate meeting first and they can come back later to add more details through Lines 3, 5, 7, and 8. Ryan clarified his question again in Lines 9 and 10 because he did not have the answer to his question yet. Scott responded to Ryan’s question by suggesting writing a summary using full sentences although he said he needed to check with the researcher in Line 11. In the stimulated-recall interview, Scott told me that he made this decision because summaries of events that he observed are usually written in full sentences.

Excerpt 5.16 (Group 4, Task1, voice-chat)

1. Ryan: Hmm, first they mentioned about…we don’t, we don’t need to make a full 2
2. sentence? Right?
3. Scott: But if you, if you can, you can, you can but really don’t remember about it=
5. Scott: =just put the…simple form-
6. Ryan: No, [I-
7. Scott: [And we can make, we can, we can add the, another sentence and some
8. full…some yeah back up thing later.
9. Ryan: No, I mean our final result, like summary thing like, we don’t need, we don’t write
down about essay, right?
Scott: Uh! No, no. The, the final form, we need to make full sentence.

Ryan: Uh, like essay?

Scott: I don’t, I don’t know, but I will, I will, I will check with Hyeyoon later, /but I think it is gonna be like a, yeah, looks like essay after it.

Ryan: Oh, okay.

Ryan and Victoria recognized Scott as the leader of the group in the stimulated-recall interviews. Victoria said, “I think Scott is the leader, like he told us what we should do.” Also, Ryan mentioned that Scott was a leader type. Scott’s role may look similar to that of a facilitator in the facilitator/participants patterns found in Group 1. However, unlike Haru in Group 1, who played a facilitator role, Scott mostly focused on the processes of writing; he made suggestions about the procedures of writing, answered other’s questions regarding these procedures and outlined the structure of the summary by creating headings.

Ryan actively participated in the activity in that he took the most turns and initiated most decision-making episodes. These episodes were mostly discussions of how to format a summary and how to proceed with the collaborative writing process. Also, Ryan asked questions to other regarding the content of the debate, and he provided some explanation when Scott and Victoria requested it. Excerpt 5.17 displays one decision-making episode initiated by Ryan.

Excerpt 5.17 (Group 4, Task 1, voice-chat)

1 Ryan: We can put Han, Hangul
2 [Korean alphabet], right?
3 “As 혜윤 (Hyeyoon) mentioned”, right?
4 Scott: Or HY.
5 Ryan: Just HY? Yeah, good idea.
From Lines 1 to 3 of Excerpt 5.17, Ryan asked other members if he could write the name “Hyeyoon” in Korean. In Line 4, Scott suggested to use HY instead of writing it in Korean. Ryan agreed to Scott’s suggestion and replaced “혜윤” with “HY”.

In contrast, Victoria seemed not to interact much with others. However, that behavior did not mean that she did not participate actively in the writing. She wrote similar amounts of summary (438 words) to Scott (483 words), who wrote the most in Task 1. Victoria paid good attention to what other members said or suggested and followed them, as shown in Excerpt 5.18.

Excerpt 5.18 (Group 4, Task 1, voice-chat)

1    Scott: I will write down the…what we gonna do. So first, uh-
2          (On Google Docs).      1.0: Even though people tend to choose not having children,
3          Ryan: Uh-huh.
4    Scott: We need to just write down,
5          make some summary of the sentences
6          we had.
7    Victoria: Okay.
8    Scott: So, Ryan, write down your
9          sentences first. Victoria, write down
10       Victoria’s sentences first.
11       Victoria: Uh-huh.

((Victoria wrote, “Even though people tend to choose not having children.”))
Scott told other members what he was going to do in Lines 1 and 2. Ryan responded to Scott by saying, “uh-huh” in Line 3. Scott told them what they needed to do in Lines 4 to 6, and Victoria agreed with Scott in Line 7. Then Scott assigned a specific duty to each group member in Lines 8 to 10. Victoria agreed with Scott in Line 11, and she started to write what Scott asked her to write.

What is more, Victoria helped Ryan with language forms a few times across the three tasks, as shown in Excerpt 5.19. In Lines 1 through 3, Ryan asked other members how to spell the word “destroys”. Victoria wrote “destroies” for him on Google Docs, unfortunately misspelling it. Ryan thanked her for her help in Line 4, and she responded to Ryan in Line 5.

Excerpt 5.19 (Group 4, Task 1, voice-chat)

1 Ryan: Destroys, destroys? Women ((On Google Docs))
2 also have destroys the, or. Ah, I should In addition, having children destories parents
3 search it. relationships.

((Victoria fixed the spelling of “destroies”.)})

4 Ryan: Oh, thank you, Victoria.
5 Victoria: You are welcome.

Victoria’s quiet but active participation was also observed by Ryan. In the stimulated-recall interview, Ryan mentioned that Victoria worked on her parts and helped others without talking much. Ryan also said that even though she was quiet, Victoria seemed to know what was going on and what everybody was doing.

b) Task 2: Leader-participants

The interaction pattern of Group 4 in Task 2 was also identified as leader-participants. Scott contributed the most in both writing and text-chat. He kept playing the role of the leader by
suggesting to others what to do regarding the summary writing activity. For example, Scott asked others to revise the writing that they were working on. In Excerpt 5.20, Scott commented that Victoria used third-person subjects (e.g., to refer to the second speaker of the proposition team) through Lines 1 to 3. Victoria asked Scott to clarify what he said in Lines 4 and 5. Then, he explained that she wrote not using a real speaker’s perspective (i.e., first-person pronoun “I”) but using the third-person perspective (e.g., for the third speaker of the opposition team) in Line 6. Victoria asked if it would be problematic for her to use a third-person perspective in Lines 7 and 8. Scott explained that Ryan and he used the first-pronoun “I” to write the summary in Line 9. Scott seemed to hope to keep personal pronouns consistent across the summary. Victoria agreed to revise her part in Line 10.

Excerpt 5.20 (Group 4, Task 2, text-chat)

1   Scott: Victoria
2   i just found that
3   you are typing sentences
4   Victoria: what
5   what do you mean
6   Scott: as if you were not a real speaker
7   Victoria: oh yes
8   is it a problem if im doing that?
9   Scott: but I and Ryan is doing
10  Victoria: i can change it

Similar to Task 1, Ryan actively participated in the discussion by asking questions regarding language forms and by making suggestions on revisions of the summary. Victoria took
similar numbers of turns to Scott and Ryan in Task 2 although there was a tendency across all the
groups that participants took more turns in voice-chat than in text-chat because of different
nature of these modes of communication. In the stimulated-recall interview, Victoria mentioned
that she could contribute more in Task 2 because she could go back and check the text-chat
window to see what others had said so she could respond to them. It was difficult for her to listen
to what others said when she focused on the summary writing.

c) Task 3: Collaborative

The interaction pattern of Group 4 in Task 3 was identified as collaborative. What
determined the interaction pattern was twofold. First, different from the previous tasks, Scott
took the least turns among the three participants in Task 3. His turns mostly focused on
discussing the content of the writing rather than deciding on the procedures for the summary
writing. It is possible that Group 4 got so used to outlining and writing a debate summary by
working on their own arguments first that Scott may not have needed to suggest to others what to
do.

Excerpt 5.21 shows the participants becoming familiar with their writing practices. Ryan
asked Scott in Lines 1 and 2 if he knows what he needs to do. Throughout Tasks 1 and 2, Scott
had been outlining the summary by writing a heading for each section. Scott agreed with Ryan in
Lines 4 and 5 and started to structure the summary. Then, Ryan started to write the title of the
debate next to where Scott wrote “Title”.

Excerpt 5.21 (Group 4, Task 3, voice-chat)

1 Ryan: Okay…Scott, you know your ((On Google Docs))
2 job, right?  
3 Victoria: Hhh.  

Title: This house would
First speaker of Proposition

(Scott started to write, “Title”, “First speaker of Proposition”, and “First speaker of Opposition”).

(Ryan wrote, “This house would”.)

Second, Victoria participated more actively in Task 3, increasing her number of turns distinctly compared to the previous two tasks. Also, she initiated four decision-making episodes regarding content, language forms, as well as writing procedures whereas she had initiated almost no decision-making episodes in the previous two tasks. Excerpt 5.22 illustrates one of Victoria’s initiations of decision-making episodes.

Excerpt 5.22 (Group 4, Task 3, voice-chat)

1 Victoria: So, my question is, are we gonna write as…the…person?
2 Or are we gonna write as…uh…listener? Hhh.
3 Scott: Victoria.
4 Victoria: Huh?
5 Scott: Speak clear.
6 Victoria: I don’t know how to say that. Like last time, do you remember how I write it?
7 Scott: Okay, okay, okay, okay. I know. I got it. Uh-
8 Victoria: How are we gonna write it…this time?
9 Scott: So, yeah. I know, I know it is much comfort-, it is much comfortable the, following the, the method we had.
10 Victoria: Yes.
Scott: But today is kind of the last time-
Ryan: Yes.
Victoria: Okay.
Scott: Let’s try some new things, new stuff.
Victoria: Okay.

In Lines 1 and 2, Victoria asked how the group would refer to speakers in the summary. In Lines 3 and 5, Scott requested Victoria to clarify what she meant. In Line 6, Victoria tried to elaborate more about her question. In Line 7, Scott indicated he understood what Victoria meant. Then, Victoria repeated the same question in Line 8. Scott suggested trying a new style referring to speakers as the first, second, and third speaker of the opposition team instead of using first-person pronoun “I” (Lines 9, 10, 12 and 15). Victoria agreed with Scott in Lines 14 and 16. In the stimulated-recall interview, Victoria said that she wanted to check if everyone used the same style so that the summary would be cohesive.

Also, members of Group 4 helped one another to understand the content of the debate meeting by sharing the information they had. For example, In Excerpt 5.23, Ryan asked Scott if he knew what Eunbie, a member who participated in the debate, said during the debate in Line 1. However, Scott did not remember what Eunbie said and asked Victoria in Line 2. Then, Victoria asked Ryan to repeat the question in Line 4 and asked what “pesticide” means. Scott intervened and explained the meaning of “pesticide” in Lines 8 and 10. Ryan also tried to explain the meaning of “pesticide” in Line 9. Victoria seemed not to remember what Eunbie said, however, Victoria remembered Eunbie’s point after Ryan provided the information that he remembered in Lines 14 and 15. Finally, Victoria explained Eunbie’s argument through Lines 16, 18, 20, and
By interacting with Victoria, Ryan could collect the information he needed for writing the summary in Line 23.

Excerpt 5.23 (Group 4, Task 3, voice-chat)

1 Ryan: Scott, do you remember what Eunbie say about the…pesticide?
2 Scott: Uh…no. How about Victoria?
3 Ryan: Victoria?
4 Victoria: Can you say the question again?
5 Ryan: Yeah, Eunbie…mentioned about pesticide.
6 Victoria: What does that mean?
7 Ryan: Uh-
8 Scott: Pesticide, special, special medicine which kills=
9 Ryan: Bugs [or something.
10 Scott: [=bad stuff. Yeah.
11 Victoria: You, you mean Eunbie mentioned that?
12 Ryan: Yeah.
13 Victoria: I don’t remember.
14 Ryan: I think, ah, she mentioned about we should endure that situ-, we can endure that situation without the GMO.
15 Victoria: Oh, I see! Do you mean that uh, she say… we have to reduce… using pesticide?
16 Ryan: Oh ho, and then?
17 Victoria: Then, to use GMO food.
18 Ryan: Sorry, could you say it again?
19 Victoria: We have to reduce using…uh…pesticide rather= 
21  Ryan: [Uh-huh.]
22  Victoria: [than eating GMO food.]
23  Ryan: Okay. Thanks.

To sum up, the collaborative pattern was observed predominantly across the four groups in this study. I found variations of the expert/novice pattern (i.e. facilitator/participants and leader/participants). Also, the cooperative pattern, which was observed only in CMC in Tan et al. (2012), was found in this study as well.

5.2) Participants’ goals in writing tasks

Participants’ goals in the summary writing tasks were first identified from the background survey questionnaires. They were asked later to elaborate on their goals in the stimulated-recall interviews, as displayed in Table 5.13.

Table 5.13

Groups 2, 3, and 4 Participants’ Goals in Writing Tasks

<table>
<thead>
<tr>
<th>Participant (Group)</th>
<th>Task 1</th>
<th>Task 2</th>
<th>Task 3</th>
</tr>
</thead>
</table>
| Yuko (Group 2)      | 1) To self-evaluate my writing skills  
2) To practice summarizing with a formal style  
3) To share each other’s thoughts about learning English |
|                     | 1) To use the Google Docs more efficiently  
2) To organize the summary better than the last time  
3) **To understand the debates arguments better by discussing with others** |
|                     | 1) To improve debate skill  
2) To improve the summary and summarizing skills  
3) To get to know better about other members. |
| Lauren (Group 2)    | 1) **To share thoughts with others and broaden my perspective**  
2) To make a habit of studying English (writing) regularly  
3) To learn how to use Google Docs |
|                     | 1) To review debate points with others to see if I missed anything  
2) **To learn about debate arguments from both sides by discussing with others** |
|                     | 1) To summarize debate arguments with others  
2) To learn more about the details of the debate that I may missed. |
<p>|                     | 3) To document the debate arguments to retain expressions and words used |
|                     | 3) To remember content of the debate |</p>
<table>
<thead>
<tr>
<th>Name</th>
<th>Group</th>
<th>Goals</th>
<th>Skills</th>
</tr>
</thead>
</table>
| Carey     | Group 2 | 1) To find my grammatical mistakes  
2) To learn how to summarize debate  
3) To remember debate topic and main arguments | 1) To pay attention to others’ text-chat message  
2) To use short and simple word to communicate easily  
3) To share my idea with other members |
| Mike      | Group 3 | 1) To organize my thoughts and other people’s opinions  
2) To learn new vocabulary  
3) To improve my English skills | 1) To improve my skills for organizing the debate arguments  
2) To learn and use appropriate vocabulary  
3) To write a summary concisely  
1) To summarize the debate in a more organized way  
2) To improve vocabulary use  
3) To write a summary more concisely |
| Eunbie    | Group 3 | 1) To explore the debate topic in depth  
2) To clarify the main debating points  
3) To work together with other members | 1) To complete a summary within the given time  
2) To improve my English skills  
3) To collaborate with other members better  
1) To review and edit the summary together collaboratively  
2) Write it more clearly  
3) Communicate efficiently with other members |
| Jill      | Group 3 | 1) To understand the debate topic  
2) To learn how to write summary (of debate)  
3) To improve my English writing skills | 1) To write a better summary than the last time  
2) To improve communication skills  
1) To practice/improve organizing ideas in writing  
2) To practice/improve communication skills |
| Scott     | Group 4 | 1) To practice remembering debate content and summarizing it after the debate  
2) To self-evaluate how well I presented my ideas in English during the debate by writing about it. | 1) To communicate efficiently with others via text-chat  
1) To make summary following the speech order of the debate  
2) To organize content easy to read  
3) To include all important information in the summary  
3) To make summary with a different perspective (i.e., using third person singular to describe speakers) |
| Ryan      | Group 4 | 1) To share the information about debate topic with other members  
2) To improve my writing skills | 1) To share ideas with other members  
2) To improve my writing skills  
2) To practice writing skills |
To check my summary skills  3) To learn English grammar from others’ feedback on what he wrote  3) To develop my English skills

Victoria (Group 4)  1) To use grammatically correct sentences  1) To practice writing skill of summary  1) To learn how to communicate with other group members effectively

2) To improve English writing skill  2) To learn writing style of other people  2) To practice my writing skills

3) To improve the speed of writing  3) To write faster and have time to review and edit together  3) To test my memorizing skill

Note: Goals considering working with others are boldfaced.

Before doing the first task, most of the participants set their goals for the task in regards to their individual needs. For example, the most frequent goals were to improve or practice English writing skills and to learn how to write a (debate) summary. Some participants mentioned that they wanted to write grammatically correct sentences. Also, they hoped to learn how to use Google Docs. Only three participants set their goals to share and discuss the content of the debate meeting (Lauren in Group 2 and Ryan in Group 4) and to work with other members (Eunbie in Group 3) for the first task. Lauren, Ryan, and Eunbie kept these goals across the three tasks.

Some participants came up with goals that considered working with other members after the first collaborative writing activity. For example, Carey’s goals in Task 2 distinctly changed from Task 1 to mostly focus on how to communicate efficiently with others. During the stimulated-recall interview, Carey mentioned that she thought she could just work on parts of summary that she was responsible for. However, after the first task, Carey found that she could get some information that she had missed by asking other members. Also, she found that she could help others by sharing what she remembered from the debate. After experiencing some benefits of working with others, Carey came up with goals that considered how to communicate
with others more effectively. Carey’s number of words per turn increased in Group 2’s discussions over the three tasks as did the percentage of her number of turns (see Table 5.1). Similarly, Victoria in Group 4 set goals about reviewing the summary together in Task 2 and learning to communicate efficiently with other members in Task 3. She commented that she did not talk much in Task 1 and she liked to participate more in the next tasks. Victoria took longer turns in Tasks 2 and 3, and the percentage of her words per turn increased across the tasks.

Some participants came up with goals for the writing tasks as they started a task. For example, Scott in Group 4 came up with an impromptu goal that he would take the role as leader for his group. He decided to take a lead because he was aware from previous experiences that some people tend to waste time to figure out what to do in a group at the beginning of a task. Scott thought that step could be minimized if someone leads and suggests to others what to do. While some participants set their goals by reflecting on their experiences of group work in Task 1, some participants set similar goals across three tasks that focused on individual language learning. For instance, Mike had goals focusing on improving his English writing skills and learning and using proper vocabulary for the summary. These goals did not seem to have any consideration of his working with or as a group. Indeed, Mike expressed a strong preference for working individually.

Interestingly, one participant, Yuko, saw the collaborative summary activities as opportunities to chat and share ideas with other members outside of debate meetings. Thus, she set two goals focusing on building relationships among group members: (a) sharing thoughts about learning English and (b) getting to know more about other group members.

5.3) Factors that mediated participants’ collaborative writing activities
As described in Chapter 4, I organized the mediating factors of collaborative writing into three main domains: (a) individual factors, (b) instrumental factors, and (c) task factors. Each domain has sub-categories. Extending the results from analyses of Group 1 reported in Chapter 4, there were three factors newly observed from the three other groups’ data, as shown in boldface in Table 5.14. The results of each group’s factors that mediated group collaboration are presented below by the three domains and their sub-categories.

Table 5.14
Three Domains and Sub-categories of Factors Mediating Collaborative Writing from All Four Groups

<table>
<thead>
<tr>
<th>Mediating factors</th>
<th>Sub-category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual factors</td>
<td>a) Participants’ goals and goal-directed actions</td>
</tr>
<tr>
<td></td>
<td>b) Matches/mismatches between self and other-perceived roles</td>
</tr>
<tr>
<td></td>
<td>c) Participants’ perceptions of group work</td>
</tr>
<tr>
<td></td>
<td>d) Learners’ perceptions of peer feedback</td>
</tr>
<tr>
<td></td>
<td><strong>e) Language proficiency issues</strong></td>
</tr>
<tr>
<td>Instrumental factors</td>
<td>a) Modes of communication</td>
</tr>
<tr>
<td></td>
<td>b) Technical glitches</td>
</tr>
<tr>
<td></td>
<td><strong>c) Utilizing notes and recordings of debate meeting for debate summary</strong></td>
</tr>
<tr>
<td>Task factors</td>
<td>a) Task representation</td>
</tr>
<tr>
<td></td>
<td>b) Familiarity with debate topics</td>
</tr>
<tr>
<td></td>
<td><strong>c) Familiarity with the tasks</strong></td>
</tr>
</tbody>
</table>

Note: Newly observed factors are boldfaced.

5.3.1) Individual factors

5.3.1.1) Participants’ goals and goal-directed actions

Similar to the focal group described in Chapter 4, some participants’ goals and goal-directed actions in Groups 2, 3, and 4 were observed to be influenced by group interaction patterns and also their interaction patterns reciprocally influenced their goals.
a) Group 2: Carey’s goal of communicating with others more effectively

Doing collaborative writing summary by interacting with others influenced Carey’s goals and goal-directed actions. In the beginning of her participation in this study, Carey thought that she could just work on her share of writing. Thus, she took relatively fewer turns compared to other members in Task 1 as she focused on the summary writing. However, in Task 2, Carey came up with a new goal to focus on communicating with others more effectively. Particularly, Carey paid close attention to what others said in Task 2. Carey often monitored the text-chat window and responded to others when they stated what they were planning to do next.

Excerpt 5.24 (Group 2, Task 2, text-chat)

1 Lauren: I’ll do [the arguments of] eunbie then
2 Carey: (24) okay
3 Yuko: (205) I've done Steve’s part, but I guess it's not perfect so plz add later.
4 Carey: (10) okay.

In Line 1, Lauren told others that she would work on what Eunbie presented at the meeting. Eunbie (in Group 3) participated in the debate meeting as a debater in this data. After 24 seconds, Carey responded to Lauren in Line 2. For 205 seconds, all members of the group worked on their shares of writing and nobody sent text-chat messages. Then, Yuko requested others look at Steve’s arguments which she wrote in Line 3. Steve was one of the debate club members who participated in debate meetings but not summary writing activities. After 10 seconds, when Carey noticed the text-chat message she responded positively to Yuko in Line 4.

Carey retained this goal in Task 3 as well. In the stimulated-recall interview, she mentioned that paying attention to what others said was important to her to communicate with others and to share her ideas effectively. Carey informed others whenever she moved on to a new
part of the summary. Also, she often asked clarification and confirmation questions regarding the procedures of writing.

Excerpt 5.25 (Group 2, Task 3, voice-chat)

((On Google Docs))

Steve: The organization of fair trade is not yet well-organized for now though, it is growing and could be transparent. *And it is not* It’s already being helpful, many people are realizing more about fair trade by this movement.

Carey: Uh! Lauren…so…uh, Lauren?
Are you typing here?
Lauren: Hm?
Carey: Lauren? Are you typing here?
Lauren: Where? Steve’s part?
Carey: Yeah.
Lauren: Yes.
Carey: Okay, you can type what he said.

Excerpt 5.25 shows an example of Carey’s negotiation on the procedure of writing. Carey was working on Steve’s part to which Yuko requested others add more details (see Line 3 of Excerpt 5.24). She deleted “*And it is not*” to revise the part. However, Carey noticed that Lauren was also working on the same part and asked Lauren if she is working on Steve’s argument in Line 1. Lauren confirmed it through Lines 5 and 6. Carey told her to keep doing what she was doing in Lines 8 and 9. Then, Carey moved on to a part that nobody was working on.
b) Group 4: Scott’s goals of leading the tasks and using the third person perspective for the summary

In the stimulated-recall interview, Scott told me that he noticed from his past group work experiences that people tend to waste time to figure out what to do. Thus, Scott quickly decided to lead the group as the first task stared, although being a leader had not been in his agenda. He frequently made suggestions to the procedures of the writing using “let’s” (see Excerpt 5.14 for an example) and answered others’ questions on format and procedures of the summary writing (see Excerpt 5.15). Also, Scott created headings for each section to outline the summary to help other members to have some ideas about the structure of the summary, as shown in Excerpt 5.26.

Excerpt 5.26 (Group 4, Task 1, voice-chat)

1 Scott: Okay, so I, I will write the…so, ((On Google Docs))
2 here’s the start. One, one proposition, 1.P
3 1P…and one opposition 1O and two 1.O
4 proposition, 2P, 2 opposition, 2O. 2.P
6 Scott: Three proposition and three 3.P Final sentence
7 opposition and=
8 Ryan: Uh-huh 3.O
9 Scott: =final, uh, sentence.
((Scott wrote “Final sentence” on Google Docs.))
From Lines 1 to 4, Scott read out loud what he was writing on Google Docs. In Line 5, Ryan responded to Scott to indicate that he was following what Scott did. In Lines 6, 7, and 9, Scott explained what 3P and 3O meant. In Line 8, Ryan responded to Scott to show that he understood what Scott said. Scott’s attempts to lead the group shaped the interaction patterns of Group 2 to be leader/participants.

Also, Scott’s goal of changing perspectives of the summary influenced the interaction patterns of Group 4. He suggested the group use the third-person perspective. This perspective made group members engage with one another closely to make decisions. In Task 3, Scott set up a goal specific to change the style [perspective] of the summary writing. In the stimulated-recall interview, he specified that he hoped to use the third-person perspectives (e.g., he, she, the first speaker of opposition team) in the summary because he noticed that summaries of events are usually written in the third-person perspective.

Excerpt 5.27 (Group 4, Task 3, voice-chat)

1 Scott: Let’s try some new things, new style.
2 Victoria: Okay.
3 Ryan: New style?
4 Scott: So, yeah, so new type. So, so, so only for today= 
5 Victoria: Uh-huh.
6 Scott: =let’s try to write the… summary as if we are observers.
7 Victoria: What?
8 Ryan: Observer?
9 Victoria: Hh, okay.
10 Ryan: Scott, how about me? First speaker was my position. Should
Scott suggested using the third-person perspective to report the debate meeting in Line 1. Victoria agreed with Scott in Line 2. Ryan requested clarification by repeating “new style” using a raised tone of voice in Line 3. Scott explained what he meant in Lines 4 and 6. Victoria responded positively to what Scott said in Line 5. Both Victoria and Ryan asked what Scott meant in Lines 7 and 8 respectively. In Line 9, Victoria understood what Scott explained, while Ryan asked Scott to elaborate about “writing like [an] observer”. In Lines 12 and 13, Scott explained to clarify what writing like [an] observer meant by giving an example (i.e., using third-person perspective). In Line 14, Victoria repeated part of Scott’s utterance. Scott acknowledged what Victoria said in Line 15 and Ryan responded to them positively.

Excerpt 5.28 (Group 4, Task 3, voice-chat)

1 Ryan: Okay! Scott, you just start your sentence. I think we can like, copy or ((On Google Docs))
2 Scott: Okay, okay. So, this time-
3 Ryan: =follow your sentence, right?
4 Scott: Okay, this time it could be First speak of Proposition(Ryan):

Title : This House would ban the development of genetically modified organisms
confusing. But I will, let’s try new type of…summary. I’m going to write down my part, first.

Ryan: Okay, okay.

Scott: You can co-, you can just…uh use it as a reference.

Ryan: Uh-huh.

Scott: Okay. Let me see.

((Scott wrote, “By the first speaker of opposition, the definition of Genetically Modified Organism is this.”))

Scott: You got it?

Ryan: “By the first speaker of opposition—…” Okay. Hhh…I didn’t get it.

Scott: You didn’t get it?

Ryan: No. So-

Scott: Okay, okay, okay.

Uh…I found it is kind of confusing for me as well. So, just, let’s, let’s follow the rules that we used.

Ryan: Hhh, okay. Let’s, just, like last time, okay?
27 Scott: Yeah, that’s right. I wanna try
28 new things but it’s confusing.

Excerpt 5.28 shows a later episode of Group 4’s using the third-person perspective. In this excerpt, Ryan asked Scott to show his sentence from Lines 1 to 3. Scott agreed to model a sentence in Line 4 and through Lines 6 to 9. Ryan agreed to Scott’s suggestion in Line 10. Scott told Ryan to use Scott’s sentence as a reference in Lines 11 and 12. Then, Scott wrote, “By the first speaker of opposition, the definition of Genetically Modified Organism is this” on Google Docs to demonstrate use of “the first speaker of opposition.” Scott asked Ryan if he understood what Scott explained in Line 15. Ryan read the sentence, but still he could not figure out what Scott meant in Lines 17 and 18. Finally, Scott suggested the group not to change the perspective and to use the first-person pronoun “I” in Lines 21 to 24. Ryan asked if the group wanted to write like the last time in Lines 25 and 26. Scott answered positively and agreed that changing perspectives is confusing in Line 27. Although Scott’s goal-directed actions were not successful, the group members engaged with others closely to make a decision.

c) Group 4: Victoria’s goals of interacting more with others

As previously observed, Victoria contributed more to summary writing than to verbal communications with Group 4 in Task 1. Including Victoria, all members commented that she did not talk much while they were working on Task 1. However, her patterns of contribution changed throughout the last two tasks as she came up with a new goal of learning how to communicate with other people in a group. She contributed almost twice as much to written/verbal interactions in both Tasks 2 and 3 than in Task 1. In the stimulated-recall interview, Victoria stated that she did not need to talk to other members much because she took extensive notes of the debate meetings and she had almost the all information she needed in Task
1. However, for Tasks 2 and 3, she tried to recall the content of the debate by interacting with others instead of taking detailed notes.

5.3.1.2) Matches/mismatches between self and other-perceived roles

Matches/mismatches between self and other-perceived roles also influenced how participants interacted with one another across three groups. In Group 2, Lauren and Carey seemed to reach the consensus that Yuko was the one who drafted the summary. Accordingly, they added details to Yuko’s writing and edited the summary. Both Lauren and Carey identified Yuko as the person who outlined the summary. They also specified that they added some details of the debate meetings and edited the summaries.

On the other hand, Lauren tried to lead the activity but her effort to facilitate the writing activity was not recognized by other group members. In the stimulated-recall interview, Lauren mentioned that she tried to organize the writing activity and to play a role as “a guide” so people could keep going with the summary. She commented that usually she does not like to take the lead in group work and prefers to work on only what she is responsible for. However, Lauren noticed that everybody in her group had similar working styles to hers. So, she decided to take some actions to organize the summary writing activity. Lauren’s attempts to organize the task were observed in the screen recording data. She tried to facilitate the writing activities by saying, “Shall we start?” and “Should we move on to the next section?” However, such efforts by Lauren had not contributed to determining the group’s interaction pattern. She initiated few facilitating turns, and it seemed that Yuko and Carey did not register with Lauren’s attempts to leading the activity.
In Group 3, Mike identified that he contributed to giving feedback and editing the summaries. Eunbie and Jill recognized and appreciated Mike’s roles of giving feedback and editing the summary. Jill mentioned that Mike fixed their sentences and organized them in a better way.

Excerpt 5.29 illustrates Mike giving feedback to the group. From Lines 1 to 5, Mike pointed out that an argument of the opposition team (Internet is beneficial) was misplaced with the proposition team (i.e., Internet is harmful). As mentioned previously, this confusion seemed to have been caused by the structure of the debate title: “This house believes the Internet brings more harm than good.” The title was not definitive (e.g., Internet is harmful) because it used a comparative. The participants needed to think a bit more to decode the title and they needed to associate this information with who debated what. In Line 6, Jill responded to Mike by saying “opposition” with a rising tone of voice indicating uncertainty. In Line 7, Mike asked if the group agreed with him. Jill figured out that Mike was right in Line 8. Mike asked Jill a question to confirm if he was right in Line 9. Jill confirmed that she understood what Mike meant and agreed with him in Line 10. Also, Eunbie agreed to Mike in Line 11.

Excerpt 5.29 (Group 3, Task 2, voice-chat)

1 Mike: Opposition… actually… ((On Google Docs))
2 the second speaker proposition is… 2nd speakers
3 statement is opposition’s statement, Proposition: internet could help new
4 isn’t it? Proposition is more harm developing business field like IT, where you
5 than good. can establish stores online and sell products
6 Jill: Uh…opposition? which means you can save costs instead of
7 Mike: Is that right? having stores physically. Addition to that, what
We can obtain from SNS like Facebook or Mixi exceeds The danger of using those SNS websites. we could add celebrities to our friend lists and get their real life information from their posts.

Right after this episode, Eunbie showed appreciation of Mike’s contribution by complementing him, as displayed in Line 3 of Excerpt 5.30. Eunbie also complemented Mike’s arguments in Lines 7 and 8. Mike was not accepting Eunbie’s complements (in Lines 4, 6, and 9) but he finally thanked her in Line 11.

Excerpt 5.30 (Group 3, Task 2, voice-chat)

1 Eunbie: Mike?
2 Mike: Huh?
3 Eunbie: Did you know you are really smart?
4 Mike: [No, no.
5 Jill: [Hahaha.
6 Mike: You’re kidding me.
7 Eunbie: And then when I listen to your debating is really always blow my mind. Wow, you are so smart, ah, what am I doing, you know? Haha.
8 Mike: Yes. You are talking like that right now. Hhh
9 Eunbie: So, anyway I really wanted to tell you that you are really smart.
10 Mike: Thank you…I’m not but thank you.

Also, Eunbie’s contribution of outlining the debate summary was recognized by Mike and Jill, and they appreciated and followed Eunbie’s summary structure. Mike mentioned that
Eunbie contributed to building the structure of the summary writing by suggesting many ideas such as use of bullet points for the debate arguments. Jill also mentioned that Eunbie suggested a structure of summary, which helped the group to start writing. Excerpt 5.31 demonstrates an incident in which the group utilized their outline of the summary and engaged in the writing activity.

Excerpt 5.31 (Group 3, Task 2, voice-chat)
((Jill wrote “2nd speakers” for the heading of the section. Then, she deleted “Second speaker” for both Proposition and Opposition team.))

1 Eunbie: Do you like this format?
2 Mike: Yeah.
3 Jill: Uh…I tried to change a little bit…uh-
4 Eunbie: Yes. I saw. So I copied yours.
5 Jill: Oh, Okay… I copied yours, too.
6 ((On Google Docs))

2nd speakers
2)Second speaker (Proposition): Internet could help new developing business field like IT field, where you can establish stores online and sell products, which means you can save costs 1) instead of having stores physically. Addition to that, what we can obtain from SNS on the internet like

Second speaker (Opposition:)

Eunbie asked others if they liked the format she suggested in Line 1. Mike responded positively to Eunbie’s question in Line 2. Jill told Eunbie that Jill tried to modify the format by placing proposition and opposition teams’ arguments under 2nd Speakers as a sub-category in Lines 3 and 4. Eunbie said that she saw what Jill was doing and she followed what Jill did in Line 5. Jill also said that she copied Eunbie’s format in Line 6.
In Group 4, Scott played role as a leader, and his role was recognized by Ryan and Victoria. Ryan commented that Scott seemed to like to take the lead and to be in charge of the tasks. Also, Victoria said, “I think Scott is the leader like tell us what we should do.” Their recognition and positive attitudes toward Scott’s leadership allowed him to play the role of leader. Scott discussed and decided with others regarding the procedure and format of the summary writing by using “let’s” to include everybody. In particular, Ryan frequently consulted with Scott, and Scott suggested to Ryan what to do.

On the other hand, Ryan’s question asking actions received mixed responses. Ryan stated that he asked questions not only to get information he needed but also to initiate discussions regarding the content and the procedure of the writing. However, others interpreted Ryan’s actions of asking questions differently. Victoria appreciated Ryan’s questions because they made her think about the debate while Scott didn’t take Ryan’s question seriously sometimes because Scott thought that Ryan is a sociable person and he asked questions sometimes to others for the sake of interaction.

5.3.1.3) Participants’ perceptions of group work

Participants’ perceptions of group work influenced how they interacted with others. In Group 2, Yuko and Carey expressed that they preferred to work in a group while Lauren preferred to work individually. Yuko and Carey’s preference toward group work remained the same at the end of the research. Across the tasks, Lauren became more in favour of group work. Lauren acknowledged the benefits of group work such as sharing ideas and information regarding debate meetings. Lauren put some effort into making group work more effectively
trying to guide their writing activities. She was satisfied with working in a group because the group members respected each other’s contributions and helped others with editing.

All members of Group 3 said that they preferred to work individually. Eunbie and Jill, however, became more favorable to working in a group after participating in the collaborative writing activities. Eunbie mentioned that she did not like group work because she had some negative experiences with someone who free rode or someone who dominated the task and tried not to compromise when there was a conflict. However, Eunbie stated that she really liked her group in this study because they understood each other well and tried to help one another. It seemed that good team work motivated Eunbie to interact with others closely by making suggestions and requested other’s opinions on procedures and the content of the summaries as mentioned earlier in the current chapter. Jill also mentioned that she was very satisfied with group work because they could decide on the format of the summary and solve problems together. On the other hand, Mike simply acknowledged that the group work went well. He seemed to prefer to work on his own. It was observed that Mike frequently used Google and an online dictionary to search words that he needed for writing summary instead of asking others.

In Group 4, Ryan and Victoria stated that they like to work in a group. Victoria said that she likes group work because she can hear different opinions from other group members. Also, Ryan was in favor of group work because group members can help each other when they have questions or problems. As displayed in Excerpt 5.32, Ryan often asked questions regarding language form to others.

Excerpt 5.32 (Group 4, Task 3, voice-chat)

1 Ryan: Would ban, band, bands? Victoria?
2 Victoria: B-A-N.
In this excerpt Group 4 was working on the title of the debate summary (i.e., This house would ban genetically modified organisms.). Ryan was writing down the title and not sure about the spelling of the word “ban”. In Line 1, Ryan asked Victoria, which is the correct word among “ban”, “band”, and “bands”. In Line 2, Victoria spelled out the word “ban” for Ryan. In Line 3, Ryan repeated what Victoria said. Victoria confirmed what Ryan said is correct in Line 4. In addition, Ryan mentioned that taking part in writing promoted for him some sense of responsibility as a group member. Interestingly, Scott expressed that he had no preference between working in a group and working individually. He elaborated that deciding how to work depends on the characteristics of a task because some tasks can be done individually, and some can be done better in a group.

5.3.1.4) Learners’ perceptions of peer feedback/editing

While the focal group analyzed in Chapter 4 was concerned about confidence in peer feedback, the other three groups had mixed feeling about fixing or editing others’ writing. Lauren in Group 2 was worried about editing others’ writing because it might hurt their feelings. However, at the same time, she tried to be open-minded to both editing others’ work and receiving editing from others since the purpose of collaborative summary writing is to help each other to complete a summary. In the same vein, Carey (in Group 2) and Jill (in Group 3) also stated that that they were fine with others editing their writing because they all tried to make the summary better.
Mike in Group 3 tried to be very careful editing others’ writing because he was not sure if other members would be okay with his editing. Mike told me that sometimes even he was not sure if what he wrote was correct. Mike tried to edit Jill’s parts of summaries but he decided not to because he felt that Jill seemed not to appreciate it. (An example of Mike’s decision of not editing Jill writing was illustrated in Excerpt 5.35) Interestingly, Scott in Group 4 did not pay much attention to other’s feedback on his writing. When Ryan gave a suggestion about editing, Scott seemed not to care much about Ryan’s comment.

Excerpt 5.33 (Group 4, Task 3, voice-chat)

((Ryan wrote “(evidence) in red.”))

1 Ryan: Uh, just-. Scott, can you check your part? I just changed one word.

2 Scott: [Okay.

3 Ryan: [Trust to evidence, red part.

4 Scott: Yeah, yeah. I got it.

5 Ryan: Yeah. So… you can choose it. I just recommend that but-

6 Scott: Okay, okay. If, if you guys can wait, I’m going to quickly read from the start.

7 ((On Google Docs))

In response of what Ryan mentioned, the foods with GMO technologies seem little dangerous to eat. But that is not plain fact. We cannot see any obvious evidence that GMO foods are not good for health or GMO foods could affect human life badly. Actually we have been eating this GMO foods over 10 years though, we could not find any truth (evidence) that GMO foods are harmful.

In Lines 1 and 2, Ryan told Scott that he had a suggestion regarding word choice. Ryan wrote “(evidence)” in red after the word “truth”. He requested Scott check it and Scott agreed to do so in Line 3. Ryan explained what he had changed in Line 4 and Scott responded to Ryan in Line 5. In Lines 6 and 7, Ryan told Scott that Scott could decide which word to use. Scott agreed
with Ryan again and let others know he wished to read from the beginning of the summary in Lines 9 and 10. However, Ryan’s suggestion remained unaltered in the final draft of the summary. In the stimulated-recall interview, Scott told me that it was not necessary for Ryan to report to Scott what he had fixed in Scott’s writing because they had a mutual understanding of the problem and if one of them fixed it, then, the job was done.

### 5.3.1.5) Language proficiency issues

During the writing activities and the stimulated-recall interviews, some participants expressed that there were some challenges to debate, communicate, and write in English. Some participants reported that they did not understand what other debaters said in the debate meeting. For example, in Group 2, all three members commented that they had a hard time understanding Steve’s speech. As mentioned above, Steve was one of the debate club members who was Korean-Canadian. He identified his first language as English. Steve spoke fast in a low and quiet voice. Carey mentioned that she could not understand Steve because he spoke with a faint voice. Yuko told me that it was hard for her to catch what Steve’s said because English is not her first language. Also, Lauren expressed that it was hard for her to understand what Steve said. This challenge initiated discussions among Group 2 members to recall what Steve said in the debate, as shown in Excerpt 5.34.

Excerpt 5.34 (Group 2, Task1, voice-chat)

1. Carey: Steve’s part. Is anybody hear, Steve’s speaking?
2. Yuko: Hahaha. What?
3. Lauren: What?
4. Carey: Is there anybody heard Steve’s position=
5. Yuko: [Oh, yeah.
Carey: [=point?
L: Hahaha.
Yuko: Yes.
Carey: Hhhh.
Yuko: Uhm… yeah.
Carey: Ah!
Yuko: So, he said uh-
Carey: Politician is also human.
Yuko: Yeah.
Carey: So even if-
Yuko: Not born as a politician.
Carey: Yeah. Even if they have that unique job, they don’t need to be a role model.
That’s just a job.
Yuko: Yes.

In Line 1, Carey asked if others recalled Steve’s arguments. Yuko and Lauren asked what Carey said in Lines 2 and 3, respectively. Carey explained it again in Lines 4 and 6. Yuko responded positively to Carey’s question in Line 8. Yuko reassured Carey by saying “yeah” in Line 10. Carey said “ah!” indicating she had a sudden insight or realization in Line 11. Yuko tried to answer Carey’s question in Line 12. However, Carey told Yuko about what she remembered in Lines 13 and 15. Yuko responded to Carey positively in Line 14 and she added to what Carey said in Line 16. Also, Carey built on what Yuko said in Lines 17 and 18. Finally, Yuko agreed with Carey in Line 19.
Some other participants expressed that communicating and writing in English to complete the debate summaries were challenging for them. For instance, in Group 3, Mike mentioned that he would have participated more actively if they had done the tasks in Korean. He felt troubled and intellectually exhausted to communicate with others and write in English at the same time. Therefore, he decided to focus more on writing than communicating with others. Once Eunbie text-chatted to the group saying, “ㅠㅠ it's hard to write in English in such a short time ㅠㅠ.” “ㅠ” is one of the Korean vowels; double ㅠ (i.e., ㅠㅠ) symbolizes crying eyes in Korean Internet slang. In the stimulated-recall interview, Eunbie brought up again that writing summaries in English was very challenging for her. She commented that her group was quiet in Task 2 because they used voice-chat and it was difficult to express their opinions and ideas fluently and clearly in English. Also, Jill commented, “I am better at common conversation, but I always feel difficult to explain more official or more serious things [in English].” She also told me that she did not edit other’s writing because she was not confident about revising others’ sentences and she thought the other two in her group knew better about spelling and sentences.

Scott in Group 4 said that it was more challenging to convince the opposition team and to write a summary in English comparing to doing so in Korean. It was harder for him to remember others’ arguments in English as well. In addition, there were some occasions that he did not understand others because he did not comprehend or catch what they said or did not know the words that other debate members used.

5.3.2) Instrumental factors

5.3.2.1) Modes of communication
As observed for the focal group analyzed in Chapter 4, switching the mode of communication from text-chat to voice-chat appeared to influence participants’ engagement in the collaborative summary writing. All three groups tended to take twice to three times more turns in the task with voice-chat compared to the task done via text-chat. Most of the groups initiated more decision-making episodes when they communicated via voice-chat compared to text-chat.

Unlike Group 1, Groups 2, 3, and 4 participated in summary writing activity three times. Group 2 and Group 4 wrote a summary using voice-chat first and text-chat next. Group 3 wrote a summary using text-chat first and then voice-chat. For Task 3, all three groups had a chance to choose the preferred mode of communication, and the decision was made by majority. All decided to use voice-chat for Task 3.

While most of group members stated that they preferred to use voice-chat, three participants, Carey in Group 2, Eunbie in Group 3, and Victoria from Group 4, expressed preferences to communicating with other members using text-chat. Carey mentioned that she preferred text-chat because it pushed her to summarize and to be clear about what she wanted to talk about in written forms. Also, she told that it was easier for her to read written texts than listening and understanding spoken language. Carey observed that she could easily come back and have a look at the text-chat window if she needed. Actually, the percentage of Carey’s turns on group discussions increased in Task 2 using text-chat (35%) from Task 1 conducted via voice-chat (22%) (see Table 5.1).

Eunbie said she preferred text-chat because it was clearer for an ESL student, like her to understand and communicate with other members. However, Eunbie’s preference for the modes
of communication did not influence her from interacting with others. She interacted more in the
two tasks conducted via voice-chat in terms of the number of turns she produced (see Table 5.5).

Victoria told me that she preferred text-chat to voice-chat because she likes to type rather
than to say something. She identified herself as a quiet person. In her daily life, she prefers to
interact with people by texting rather than talking on the phone. Also, Victoria said that she
could do only one thing at a time, so she had to stop writing when someone started to talk.
Victoria was quiet in Task 1 (with voice-chat); however, her turns and the total number of words
increased over the three tasks. In particular, the percentage of her turns increased almost twice
from Task 1 (16.6%) with voice-chat to Task 2 (29.41%) conducted with text-chat (see Table
5.9).

In addition, the mode of communication influenced how Group 2 proceeded with their
writing task. For Task 1, they decided to work on all parts together. For example, one member
played a role as scribe and they made decisions on the content of the debate and about language
forms and word choices together (see Excerpt 5.2). On the other hand, in Task 2, the members
decided to divide the writing roles and review it together because “[they] don’t talk on Skype” as
Lauren mentioned. Mostly, they made decisions about procedures of writing, particularly,
dividing shares of the writing.

5.3.2.2) Technical glitches

In addition to Group 1 only Group 3 had a few occasions in which technical glitches
influenced their collaborative writing activity. During the writing using voice-chat, Mike and
Eunbie could not hear Jill well. As a result, they misunderstood each other sometimes, as shown
in Excerpt 5.35.
Excerpt 5.35 (Group 3, Task 2, voice-chat)

1 Jill: Mike?
2 Mike: Yeah?
3 Jill: Uh... if you finished your writing, can I ask you a question?
4 Mike: Yep, sorry?
5 Jill: Uh, you put the sentences=
6 Mike: Oh, it is difficult to listen your voice.
7 Jill: Uh.. you put the sentence=
8 Mike: Yeah.
9 Jill: =the next to opposition, the third speaker°.
10 Mike: Yeah, yeah.
11 Jill: °I put, I think I want to put this
12 uh... the top.. the top°
13 ((Jill highlighted “(internet is good)”.)
14 Mike: You mean this part?
15 ((Mike put the sentence “information from their children with the specific programs by google chrome” back on Google Docs.))
16 Jill: Yes.
17 Mike: I’m sorry. Yeah, Okay, I’m

- Opposition (internet is good)

Addiction to Internet is considered to cause for children who don’t know how to control them from harmful information. But there is a limited content for children, and most of the useful information for children can be obtained from other resources. So when children need to use internet, parents can strictly restrict the access for unhealthy within limited information from their children with the specific programs by google chrome.
Jill called Mike in Line 1 and he responded to her in Line 2. Jill explained why she called Mike in Lines 3 and 4. However, the quality of the voice-chat was bad, and Mike could not hear what Jill said. In Line 5, Mike asked her to repeat what she said by saying “sorry?” Jill started to explain what her question is in Line 6. Mike told her that he could not hear her well in Lines 7 and 8. Jill repeated her sentence in Lines 9, 11 and 12. Mike responded positively to Jill in Line 13. She explained what she wanted to do through Lines 14 and 15, and she highlighted “(internet is good)” using her mouse\textsuperscript{10}. At this point, there was misunderstanding between Mike and Jill. Mike did not see what Jill highlighted and he put the sentence “information from their children with the specific programs by google chrome” back to Google Docs, which was Jill’s sentence that Mike had deleted previously. He apologized to Jill for deleting her sentence in Lines 18 and 19. Actually, what Jill asked Mike was if she could delete “(internet is good)” in Line 20. Mike agreed to put the sentence back in Line 21. Jill thanked Mike to let her delete “(internet is good)” in Lines 22 and 23. Then, she deleted the sentence “internet is good.”

Mike did not notice that he misunderstood Jill until we talked about this incident in the stimulated-recall interview. Mike said he could not understand what Jill said because the quality of voice-chat was poor. He guessed that Jill was not happy because he deleted her sentence. So,

\textsuperscript{10}On a Google Docs page, a writer can highlight a letter, word, sentence, or entire page of writing by dragging and blocking using a mouse, and other collaborators can see that.
Mike decided to put the sentence back and apologize to her. In addition, Mike also mentioned that he got an impression that Jill did not like Mike editing her writing. However, Jill didn’t notice what Mike tried to do and she thought he agreed on what she asked for. Jill commented that she did not mind someone editing her writing and it was helpful to her.

5.3.2.3) Utilizing notes and recordings of debate meeting for debate summary

Taking notes during the debate was not required for participation in this study. However, most of participants took notes in preparation for the summary writing. In addition, one participant, Carey, recorded one of the debate meetings. Notes and recording of the debate meetings influenced some participants’ interactions with other group members. Two participants, Lauren in Group 2 and Victoria in Group 4, took extensive notes of the debate meetings. However, how they made use of the notes to interact with other members was very different.

Lauren spoke the most words per turn in Task 1 (see Table 5.1). Mostly, she shared what she remembered about the content of the debate. During the stimulated-recall interview, I asked her how she could remember so much detail of the debate. Lauren answered that she took notes that she used to recall the debate content. I looked at her notes, which she provided in the stimulated-recall session. They were five pages long. Lauren’s notes mediated her participating more in the collaborative writing activity and influenced the pattern of the group’s interaction to be shaped as collaborative.

Carey, who is also in Group 2, reported that she recorded the debate meeting for Task 2 to share missed information with other members. Carey took the most turns (35%) in Task 2 and spoke more words in text-chat (Task 2) than voice-chat (Task 1) to share debate content. This
tendency is unusual because most participants in this study spoke more in voice-chat than text-chat.

Victoria in Group 4 utilized her notes in a different way. She “wrote down almost everything” so she did not interact with Scott and Ryan much as shown in the analysis of her contribution patterns. She said, “Because at first time [Task 1] I took a lot of notes. I wrote down everything. So, I hadn’t had difficulties to write the summary.” I looked at her notes and, indeed, they were extensive accounts of the debate meeting. The notes encouraged her to contribute more to the summary writing than to the group’s verbal interactions.

5.3.3) Task factors

5.3.3.1) Task representations

As observed with the focal group, some participants had different understandings of what summary writing is. When they were not sure about how to write a summary, participants mostly discussed with other members to decide the structure of their summary. For example, in Group 3, Eunbie suggested others use point form to summarize debate arguments. However, Jill was not sure about what point form was. Mike and Eunbie helped Jill by explaining and showing an example of point form (see Excerpt 5.7 for details).

In Group 4, Ryan asked others if the summary needed to be like “an essay” (see Excerpt 5.10) rather than writing in point form. Scott was not sure about this because he did not get nor, did I offer any instruction on the format of a summary. Scott suggested to Ryan to write the summary using complete sentences. However, what Ryan meant by writing like “an essay” was adding more details to the summary to make it appear complete and look nice. He wondered if it was okay to put additional information that was not debated such as their own opinions. During
the task, Ryan commented, “Victoria, did you say like that? I think you put more information. Is it okay?” to raise this issue. Scott and Victoria told him that they thought it was okay to put some more information. Victoria reflected on Ryan’s comment in the stimulated-recall interview. She explained that she wrote by putting additional details because she thought otherwise people who were not in the debate meeting would not understand what she wrote. However, Ryan was not still sure about this matter by the time of the stimulated-recall interview.

Victoria had a different idea about what a debate summary is. Victoria told me that what her group wrote was not a summary because they wrote almost everything they recalled about the debate. Victoria had some experiences with writing class discussion summaries for her college course. She seemed to follow a formula that she had learned and used: Taking extensive notes for her reference and then summarizing information from the notes. That was the reason why Victoria volunteered to write a conclusion part containing a brief summary of the debate meeting. However, she did not discuss with others about her understanding of summary writing. Scott and Ryan seemed not to notice what Victoria attempted to achieve.

5.3.3.2) Familiarity with debate topics

As found in the focal group, familiarity with the debate topics also influenced participants’ collaboration on the summary writing. Carey in Group 2 reported that she could not focus on the summary writing activity because she could not be fully engaged in the debate meeting. In the meeting, the members debated about the topic on “if politicians have no privacy”. Carey said she was not familiar with the life of politicians and how their lives would be affected because they are public figures. She mentioned that it would be easier for her to relate to these
concerns if the debate topic was about celebrities’ privacy that we hear more frequently from the media.

5.3.3.3) **Familiarity with summary tasks**

Getting familiar with the summary tasks was also found to mediate the interaction patterns of Groups 3 and 4. This tendency was not observed in the focal group’s data perhaps because the focal group did the summary writing tasks only twice. In the first task with voice-chat, most participants in Groups 2, 3, and 4 took two to three times more turns than they did in the task with text-chat. They also discussed more to make decisions in the first task using voice-chat. However, most participants took fewer turns in the second task with voice-chat (i.e., Task 3 for all three groups) than they did in the first task conducted via voice-chat. In Groups 3 and 4, the number of decision-making episodes of the second voice-chat decreased from the first task with voice-chat. That decrease in the number turns and initiation of decision-making episodes may have happened because the participants got familiar with the collaborative writing tasks.

During the stimulated-recall interviews, each participant of Group 3 was asked to respond to what they thought about talking less than they did in the previous task because this issue was brought up in Task 2. Eunbie made a comment about the fact that they did not talk much while they were writing a summary in Line 1 of Excerpt 5.36 and Mike agreed with her in Line 2. Jill responded to the comment by laughing in Line 3. Eunbie justified why they didn’t talk much by saying they know what they were doing in Line 4.

Excerpt 5.36(Group 3, Task 2, voice-chat)

1 Eunbie: Hahaha. Did you notice we are really quiet today?

2 Mike: Oh, yeah.
In the stimulated-recall interview, Eunbie told me that the dynamic of text-chat and voice-chat are different, and she felt pressure to keep talking to others when she used voice-chat because “it is like talking on the phone.” On the other hand, Mike did not think that being silent was problematic because they were working. Unfortunately, Jill was not asked to comment on this event in the stimulated-recall interview.

In Task 3, all three participants in Group 3 seemed to get used to the writing tasks and they did not feel pressure to talk to each other. This perception or behavior seemed to shape the interaction patterns of Group 3 in Task 3 to be cooperative.!mike thought that it was okay to not talk much because they knew what to do with the summary writing. Eunbie stated that since they did the same kind of tasks three times, each member knew what she or he needed to do, and they did not need to discuss with others regarding procedures as much as they had to in the first task.

Also, Jill mentioned that she was not familiar with collaborative writing tasks at first. However, as time went by, she got used to it and felt comfortable about dividing shares of writing and reviewing together later because they knew what to do with the summary task.

In Group 4, Scott who volunteered to play a leader role in Tasks 1 and 2. He said that he did not need to lead the group in Task 3 because his group had gotten used to the task and knew what to do. Victoria also said, “I think we are getting better [with the task] because we already know what we should do.” Ryan seemed to keep what they agreed on in earlier tasks and to take that as a routine of the writing task. For instance, Ryan mentioned that because all group members agreed to work on their arguments first in Task 1, he decided to start his argument after Scott wrote the headings in Task 2. Scott had been creating the section headings to help other
members start their parts. In Task 3, Ryan requested to use the same format by asking Scott to create the headings of the summary. In Lines 1 and 2 of Excerpt 5.37, Ryan asked Scott if he knew what to do. Scott responded to Ryan positively and Scott started to write the heading of each section in Lines 4 and 5.

Excerpt 5.37 (Group 4, Task 3, voice-chat)

1  Ryan: Okay…Scott, you know your
((On Google Docs))
2         job, right?
3  Victoria: Hhh.
4  Scott: I think so…..yeah, yeah. I
      think so.
((Scott started to write heading of each section on Google Docs.))
5
First speak of Proposition

1. Proposition

First speak of Opposition

1. Opposition

2. Proposition

2. Opposition

In summary, collaborative, cooperative, and leader/participants patterns were found in the remaining three groups. Table 5.15 summarizes all the patterns of interaction found overall in this study.

Table 5.15

Description of Patterns of Small Group Interaction

<table>
<thead>
<tr>
<th>Interactional patterns</th>
<th>Characteristics of interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaborative</td>
<td>- All group members contribute equally to the task.</td>
</tr>
<tr>
<td></td>
<td>- Decisions are made mutually and most of them reached agreement.</td>
</tr>
<tr>
<td></td>
<td>- Group members are willing to offer and engage with each other’s idea.</td>
</tr>
<tr>
<td></td>
<td>- Group members are willing to help one another.</td>
</tr>
<tr>
<td>Facilitator/participants</td>
<td>- A person (the facilitator) takes control over the task and contributes most to the task.</td>
</tr>
</tbody>
</table>
- The facilitator encourages other members to participate, however, s/he sees others as collaborators rather than someone who needs assistance.
- The facilitator keeps track of time, checks on other’s progress in writing and resolves conflicts among participants (through facilitating talks).
- The facilitator frequently uses “let’s” when talking to other group members.
- All participants contribute actively to the task and are willing to engage with one another.

**Leader/participants**

- The leader takes over the task and contributes the most.
- The leader leads the task by making frequent suggestions on the procedures of writing.
- Decision making episodes are initiated by everybody but usually decisions are made by the leader.
- The facilitator frequently uses “let’s” when s/he makes a decision.
- All participants contribute actively to the task.

**Cooperative**

- Group members contribute equally or similarly to the tasks.
- Few decision-making episodes are initiated, and they are mostly about the procedures of writing.
- Group members focus on allocating the share of writing and don’t engage much with other’s contributions.

Only distinctive examples of participants’ goals and goal-directed actions were showcased (see Section 5.3.1.1) in this study. Table 5.16 displays all 12 participants’ goals and goal-directed actions and how each participant’s goal-directed actions interacted with others and influenced the shape of interaction patterns. Also, other actions that they took to perform the collaborative writing summaries are presented in the Table.

**Table 5.16**

**Summary of Participants’ Goals, Goal-directed Actions, and Other Actions in the Collaborative Writing Activities**

<table>
<thead>
<tr>
<th>Group</th>
<th>Each Participant’s (goal-directed) Actions and How They Influenced Patterns of Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group 1</strong></td>
<td></td>
</tr>
</tbody>
</table>
| Task 1 (text-chat) Facilitator/participants | **Haru:**  
Haru’s goals focused on collaborating with others during their writing activities.  
=> She played a facilitator role by keeping time, checking on other’s progress, and resolving conflicts among participants.  

**Mimi:**  
Her goals were to review and learn about the debate content.  
=> She discussed and checked the content with the others in her group.  
- She only selectively accepted Joey’s comments.  

**Joey:**  
Joey’s goals were to review the details of the debate and to document it for future use.  
=> He asked questions regarding word choices and language forms.  
- He provided some feedback on language forms which caused conflicts with Mimi sometimes. Haru intervened and mediated the conflicts by suggesting alternatives or incorporating both sets of comments. |
| Task 2 (voice-chat) Collaborative |  
**Haru:**  
Haru’s goals still focused on helping each other to write the summary. However, her facilitating role diminished as other member’s participation increased.  
=> Haru provided suggestions, opinions, and information to write a summary.  
- She responded to Mimi’s request for feedback and provided it.  

**Mimi:**  
Mimi revised her goal from “to review the debate content” to “to check the content debate with others.”  
=> She often invited other members to check and correct what she wrote, intending to show her appreciation of their comments.  

**Joey:**  
Joey’s goals were to review the details of the debate and to document it for future use.  
=> He asked questions regarding word choices and language forms.  
- He responded to Mimi’s request for feedback and provided it for Mimi.  
- He took on a more collaborative approach in the second task.  

**Group 2**  
| Task 1 (voice-chat) Collaborative |  
**Yuko:**  
Yuko’s goals focused on practicing summarizing in a formal style.  
=> She discussed with the other members regarding the debate content. => To make the debate summary more formal, Yuko frequently worked on headings of each section of the summary.  

**Lauren:**  
Lauren’s goal was to share thoughts with others.  
=> She provided information about the debate meeting using her notes.  

She also intended to guide the writing activity; however, this attempt was recognized by neither Carey nor Yuko.  

**Carey:**  
Carey’s goals were learning how to summarize a debate and finding her grammatical mistakes. |

*The group wrote the summary together by taking turns as a scribe.*
She gave suggestions for what to include in the summary. She asked questions regarding language forms to others to check if what she wrote was grammatically correct. Other members assisted her requests.

**Task 2 (text-chat) Collaborative**

**Yuko:**
- Yuko’s goal focused on understanding debate arguments better by discussing with others.
- She asked for information that she missed and requested confirmation checks that she was not sure about.
- She volunteered to write arguments that were difficult to write. Then she asked others for feedback and these occasions became co-constructed discussion and writing.

**Lauren:**
- Lauren’s goal was learning about debate arguments from both teams by discussing with others.
- She often shared information that she recalled from the debate meeting. Also, she asked other members about the arguments of the opposite team.
- She suggested/asked for other’s opinions on how to proceed with the summary writing.

**Carey:**
- Carey’s goal changed from Task 1 to focus on how to communicate effectively with others.
- She monitored the text-chat window and responded to others.
- She recorded the debate meeting and used it to provide information to others.

**Task 3 (voice-chat) Collaborative**

**Yuko:**
- Yuko’s goal was improving summary and summarizing skills.
- She drafted the outline of arguments such as writing each speaker’s arguments.
- She frequently revised the format of the summary.
- During the writing activity, Yuko assisted others when requested.
- She participated in a discussion to co-construct the debate summary

**Lauren:**
- Lauren’s goals were summarizing debate arguments with others and learning about the details of the debate she missed.
- She explained about debate content that she knew.
- She added little details to the summary by discussing with others.
- During the writing activity she assisted others when requested.
- She participated in a discussion to co-construct the debate summary

**Carey:**
- Carey’s goal was summarizing debate with correct grammar and sharing ideas with other members.
- To share ideas, she explained the debate content she remembered.
- Carey made some revisions on Google Docs and used dictionary/internet to check spellings of the words used in the summary. She also checked language forms with other members.
- Carey added little details to the summary by discussing with others.

**Group 3**

**Task 1 (text-chat) Collaborative**

**Mike:**
- Mike’s goal focused on organizing his thoughts and others’ opinions.
He asked other members question about what he didn’t understand.

- He provided some feedback on what Jill and Eunbie wrote.
- During the writing activity he assisted others when requested.

**Eunbie:**
- Eunbie’s goals were learning details of debate content and working together with other members.
  - She made some suggestions on the format of the debate summary.
  - When she requested suggestions or help, she used second person plural “you guys”.
  - During the writing activity she assisted others when requested.

**Jill:**
- Jill’s goals were understanding the debate topic better and learning to write a debate summary.
  - Jill extensively discussed with others regarding the content and procedure of the summary writing.
  - She participated in a discussion to co-construct the debate summary.

**Task 2 (voice-chat) Collaborative**

**Mike:**
- Mike’s goals were improving skills for organizing writing and using/learning proper vocabulary for the summary writing.
  - He made suggestions on the structure of the summary and revising some sentences.
  - He conducted frequent searches for English words.
  - By participating in discussion actively the problems were solved.
  - He provided some feedback on what Jill and Eunbie wrote.

**Eunbie:**
- Eunbie’s goal was collaborating with another members better.
  - She asked other member’s opinions on her suggestions. She also requested some ideas and suggestions.
  - By participating in a discussion actively the problems were solved.
  - She participated in a discussion to co-construct the debate summary.

**Jill:**
- Jill’s goal was writing a better summary and improving communication skills.
  - She participated in a discussion to co-construct the debate summary.
  - By participating in discussion actively the problems were solved.

**Task 3 (voice-chat) Cooperative**

*The group focused on allocating their share of writing.*

**Mike:**
- Mike’s goal focused on improving writing skills and using/learning proper vocabulary for the summary writing.
  - He tried to outline the summary by proposing sections of the summary.
  - He still conducted frequent searches for English words.

**Eunbie:**
- Eunbie’s goals were reviewing and editing the summary together collaboratively and communicating with others.
  - She told others what she was going to do regarding summary writing.
  - She asked questions to confirm or clarify regarding the process/content of the debate summary.

**Jill:**
Jill’s goals were practicing organizing ideas in writing and practicing communication skills. => She sought confirmation from others regarding the content of summary writing and changes she made.

**Group 4**

**Task 1 (voice-chat)**

**Leader/participants**

**Scott:**
- Scott’s goals were practicing remembering debate content and summarizing it after the debate. => Scott decided to take a leadership role as the writing activity started.
- Usually, he was the one who made decisions on procedures and content of the debate summary.
- He participated in a discussion to co-construct the debate summary

**Ryan:**
- Ryan’s goal was sharing the information about the debate with others. => He recognized Scott’s leadership role and supported Scott.
  - He asked others for information regarding the debate meeting. He also asked about the format and procedure of the writing.

**Victoria:**
- Victoria’s goal was using grammatically correct sentences. => She helped Ryan with language forms.
  - She recognized Scott’s leadership role and supported Scott.
  - Although she did not contribute much verbally, she paid good attention to others suggestions and followed them.

**Task 2 (text-chat)**

**Leader/participants**

**Scott:**
- Scott’s goal was communicating effectively with others using text-chat. => He was very responsive to other’s text messages.
  - He still played the role of a leader. =>Usually, he was the one who made decisions on procedures and content of the debate summary.

**Ryan:**
- Ryan’s goal was sharing ideas with other members and learning English grammar from others’ feedback. => He actively participated in the discussion by asking questions regarding language forms and making suggestions on the revision of the summary.
  - He was responsive to others’ text messages.

**Victoria:**
- Victoria set a new goal of reviewing the summary together. => She interacted more frequently with others via text-chat compared to voice-chat in Task1, sharing information regarding the debate meeting.

**Task 3 (voice-chat)**

**Collaborative**

**Scott:**
- His goals were to include all important information in the summary and to use different perspectives. => He suggested to others to use third person pronouns, but he dropped the plan because some members did not understand what he had tried to. This decision was made after an active discussion among members.
  - Scott stepped down from playing a leadership role.
• He focused more on discussing the content of the debate than the procedure of writing.

**Ryan:**
• Ryan’s goals were sharing ideas and information.
  => He actively participated in the discussion by asking questions and making suggestions on both format and content of the debate summary.
  => He participated in a discussion to co-construct the debate summary

**Victoria:**
• Victoria’s goal focused on learning to communicate effectively with others.
  => She tried to interact more with Scott and Ryan by recalling the content of the debate instead of taking an extensive note.

*Note: Bullets (●) indicate participants’ goals, arrows (=>) show goal-directed actions, and square bullets (∎) mean observed actions during collaborative writing activities.*

In sum, the mediating factors found in these three groups were similar to those of the focal group described in Chapter 4. Three newly emerging mediating factors were observed among the three other groups: language proficiency issues, utilizing notes and recordings of the debate meeting for debate summary, and familiarity with the tasks.
Chapter 6: Discussion

In this chapter, I discuss and interpret the findings of the study in view of the three research questions guiding it. I first synthesize the findings presented in Chapters 4 and 5. I then discuss their theoretical and pedagogical implications. Finally, I acknowledge the limitations of the research and suggest directions for future research in this area.

6.1) Answers to the research questions

This study investigated interaction patterns and factors that mediated small group interactions among 12 ESL learners while writing summaries of debates using Google Docs in conjunction with text-chat and voice-chat.

The research was guided by three research questions (elaborated in Chapter 1): (a) what interaction patterns occur when groups of three L2 writers engage in synchronous web-based collaborative writing tasks? (b) how do individuals’ goals influence group interactions and, conversely, how do group interactions influence individuals’ goals? and (c) what other factors influence peer interaction in web-based collaborative writing? A two-step approach to analysis proved useful in first identifying tentative answers to these research questions through detailed analyses of one focal group then, second, by verifying and expanding on those findings through subsequent analyses of data from the three other collaborative groups.

6.1.1) Interaction patterns of the groups

Collaborative patterns were observed predominantly across the four groups. This pattern may have emerged because the participants in this study were highly motivated language learners
who participated voluntarily in debate meetings and collaborative summary activities. Besides sharing their writing with debate club members and receiving some (mainly complimentary) feedback, the participants were not under pressure to score high marks; indeed, their written summaries were not formally assessed. Thus, participants might have focused more on the processes of writing rather than on the product of writing, as was evident from some of participant’s task goals. For example, Haru (Group 1), Carey (Group 2), and Victoria (Group 4) set goals regarding how to interact and communicate effectively with other group members, and these goals directed them to act in particularly collaborative ways. Haru attempted to listen to other’s opinions patiently. Carey paid more attention to group members in the second task with text-chat and responded frequently to others’ message. Victoria intentionally did not take extensive notes from the debate, so she could interact more with other group members to recall the content of the debate.

According to Storch’s dyadic interaction model (2002), in an expert/novice pattern the dominant participant acts as an expert who encourages the novice to participate in the task. In this thesis study, variations of the expert/novice pattern were found: facilitator/participants and leader/participants. In the facilitator/participants pattern, a facilitator fosters the writing activity by keeping times, checking on other’s progress, and resolving conflicts among participants. Although the facilitator, Haru, took more control over the task, the two other participants in her group contributed actively and equally to the task. Also, Haru often requested information from other group members and their assistance, indicating she was not the only expert who held information in the group; rather, the distribution of such expertise was fluid among the group peers (cf. Ohta, 2001).

In the leader/participants pattern, the leader mostly focused on dividing shares of the
writing and indicating how to proceed with the summary task. For example, Scott played a role as leader in Group 4, focusing mostly on leading the process of writing by making suggestions on procedures for writing and creating summary headings. Once the group decided what to do, Scott focused on his share of writing and did not give much attention to what others were doing. Scott could not point out what Victoria’s contribution was, because she did not talk much, when he was asked to identify other members’ contributions to the tasks. Haru (the facilitator in Group 1) would check up on Victoria by saying, “Are you okay?” during the task.

Variations of Storch’s expert/novice pattern may have emerged in this study because Storch’s (2002) interaction model was designed to examine dyadic, rather than triadic, interactions. The present dynamics among triads were somewhat different than they might have been if just two people were composing together. For example, in Group 1, Joey interacted with Haru differently than with Mimi, asking Haru more questions because she tended to be more responsive than Mimi. Mimi’s perceptions of the quality of Joey’s comments also impacted her interactions with the group, causing her to be selective in accepting peer feedback. Seemingly, Haru, Mimi, and Joey might have had different interaction patterns if only two of them had worked as a pair. It is possible in Group 4 that Scott (the leader), Ryan (who was as active as Scott in verbal contributions), and Victoria (the quiet one) would have interacted differently if only two of them worked in a pair.

Some collaborative writing studies (Li & Zhu, 2013, 2017a; Storch, 2002, 2004) have found that once patterns of interaction were established, paired groups tend to stick to the same way they interacted with one another regardless of task types. On the other hand, other studies have observed that patterns of interaction do change over time (Li & Kim, 2016; Li & Zhu, 2017a). In the present study, groups’ interaction patterns tended to stay the same over their first
two tasks. Some changed in the third task, however. For example, in Groups 1 and 4, the facilitator roles of Haru (Group 1) and the leader roles of Scott (Group 4) decreased at the end and they became collaborative participants. While Groups 1, 2, and 4 stayed in collaborative patterns, the interaction patterns of Group 3 changed from collaborative to cooperative in the third task. Participants’ interaction patterns may have changed in Task 3 because they became familiar with a routine of group work and the kinds of summary writing tasks. For example, Groups 1 and 4 got used to a routine of doing the summary tasks (e.g., each person writing his/her own argument first), so Haru and Scott did not need to facilitate or lead the writing activities any more in their third tasks. Similarly, Group 3 did not need to discuss writing procedures among themselves as frequently in their third task as they had during the first two tasks, as was evident from the number of their decision-making episodes decreasing by half in Task 3 compared to Task 2. This tendency led this group’s interaction pattern to be cooperative in Task 3.

6.1.2) Participants’ goals and their influence on interaction patterns (conversely, influences of interaction on participants’ goals)

Drawing on activity theory, I examined how participants’ goals prompted them to take certain actions, how these goal-directed actions interacted with each other’s goals, and how individual goals influenced the group’s interaction patterns.

Two participants who set goals about facilitating/leading group work shaped the pattern of their groups’ interactions, whether this goal was planned or came up impromptu as the task began. For example, Haru’s goal of helping the others in the group to write a summary encouraged her to facilitate the process of writing. In turn, Haru’s goals and goal-directed
actions, as well as other members’ understanding and appreciation of Haru’s role, shaped the facilitator-participants pattern in Task 1 of Group 1. Similarly, Scott’s leadership role was recognized by the other members and shaped the interaction pattern of Group 3 as leader/participants.

Interactions among participants also reciprocally influenced some participants’ goals and goal-directed actions. Mimi in Group 1 revised her initial goal from “to review the debate content” to “to check the content debate with others” after she realized the benefits of group work. Even though Joey’s goals seemed to remain unchanged over two tasks, the way he interacted with others saw him taking on a more collaborative approach in the second task. Joey’s actions might have changed because he felt more comfortable communicating with others via voice-chat, an interpretation that is supported by Haru’s comment on Joey’s contribution to Task 2. Haru mentioned in her stimulated-recall interview that Joey was very helpful when they communicated through voice-chat. Also, it is possible that Joey’s approach in Task 2 changed because of increasing confidence through task repetition and Mimi’s acceptance of some of his comments. Carey in Group 2 changed her goals particularly to focus on effective communication with other group members in Task 2 after realizing the summary writing task was not a private but rather a collaborative activity. Victoria in Group 4 took brief notes so that she could focus more on interacting with others to gather information about the debate and practice how to communicate with other members effectively. After setting goals that involved working with others, all three participants (i.e., Mimi, Carey, and Victoria) more actively engaged in the writing activities than they did in Task 1.

Some participants’ goals were set as they became involved in the collaborative writing activities. For example, Scott in Group 4, who played the leadership role, did not expect to be a
leader until he realized that the group needed a leader to organize the activity and assign people what to do.

The longstanding distinction between learning and performance goals also appeared in this study. Some goals focused on participants’ learning to improve their understanding, knowledge, and writing competence whereas participants who were guided by performance goals aim to complete the task and to seek positive judgement from others (cf. Ames, 1992; Cumming, 2006; Li & Zhu, 2017a). In this study, most participants’ goals included both learning and performance goals, as has been commonly found in studies of highly motivated learners (Cumming, Kim, & Eouanzoui, 2007). In some cases, the goal stated by a participant combined both learning and performance goal. For example, Haru’s goals, which focused on collaborating with others, seemed like performance goals at first glance, but they also turned out to be learning goals as she reported that she tried to learn to work more effectively with others during the tasks. Similarly, the goal of Lauren (Group 2) in Task 2 “to document the debate arguments to retain expressions and words used in the debate” (see Table 5.13) was both a performance and learning goal. Lauren mentioned that she wrote the summaries not only because I (the researcher) asked her to do so (as a requirement of participation of this study) but also because she wanted to document the content of the debate for her own language learning. Moreover, the participants who were guided by performance goals differed from traditional performance-oriented learners who aim simply to complete a task to get positive judgments (e.g., get a good grade). Most of the participants in this study set goals to complete the tasks together by interacting with others as Storch (2004) observed in her study of collaborative pairs.

6.1.3) Factors that mediated participants’ collaboration
In the previous chapters, factors that mediated collaboration were presented factor by factor. However, as Engeström’s expanded activity model has suggested, interactions between mediating factors appear in each component of an activity system, intertwined and reciprocally and dynamically influencing one another. In this way, the components of an activity system reconstruct themselves based on influences from other components of the system. Web-based L2 collaborative writing activities can at first be supported by instruments or technological tools and then later they are mediated by social mediators (Engeström, 2008, p.27) such as rules, community, and division of labor. Taking these elements into consideration, in what follows I have rearranged and will discuss the mediating factors by attempting to illustrate the intricate nature of activity. I present first the initial activity triangle in Figure 6.1 and then present the expanded triangle including the social mediators in Figure 6.2.

**Figure 6.1** Basic mediated action triangle of synchronous web-based collaborative summary writing

Collaborative writing activity is shaped by the interplay between subjects, objects, and an expected outcome and mediated by relevant instruments. As shown in Figure 6.1, participants’ collaborative writing activity was mediated by various instruments including debate meetings,
the English language, computers, Google Docs, and text and voice-chats. Instruments can be either symbolic or material artifacts or tools. Symbolic artifacts/tools in this study included language, debate meetings, a debate resource website, participants’ notes, and debate recordings whereas computers, Google Docs, voice and text-chats, debate websites, and online dictionary constituted material artifacts or tools.

Overall, voice-chat was perceived to facilitate participants’ collaboration more efficiently because voice-chat is more instantaneous and a “closer hybrid of face-to-face interaction” (Jepson, 2005, p. 81) in comparison to text-chat. The results of this study align with previous studies that have found that face-to-face and voice-chat facilitate more collaboration in pair and group work (e.g., Hamano-Bunce, 2011; Loewen & Wolff, 2016; Rouhshad & Storch, 2016) than text-chat does. In this study, all participants took more turns and spoke more words when they were engaging in the writing task using voice-chat. By taking advantage of voice-chat, Group 1 reviewed the summary as a group by taking turns to read their drafts out loud.

The pace of interaction in text-chat tends to be delayed in comparison to face-to-face (e.g., Fernandez-Garcia & Martinez-Arbeiaiz, 2003) and voice-chat interaction. Particularly, in this study, participants’ text-chat interaction may have been even slower because they were working on their own shares of the writing independently. Some participants reported that communicating via text-chat was burdensome (cf. Hamano-Bunce, 2011) because they needed to write extensively to explain things while they were engaging in summary writing activity. Consequently, some participants were discouraged to compose text messages. On the other hand, three participants expressed preferences toward text-chat because it was easier for them to read written texts rather than listening and understanding their group members’ spoken language. Also, they preferred to take some time to work on their share of writing without interruptions and
respond to others’ questions and requests later when they are available.

As previous studies have suggested (e.g., Kowal & Swain, 1994; Yule & Macdonald, 1990), L2 proficiency is a factor that seems to influence participants’ communication in groups. During the stimulated-recall interview, some participants observed that the tasks were challenging because they needed to perform them by communicating in English. Some participants identified themselves as second language speakers of English and expressed how difficult the tasks were for that reason. For example, Mike in Group 3 mentioned that he would have participated more actively in discussions if he could have communicated with his group members in Korean.

However, the modes of communication mediated participants’ interactions differently depending on participants’ strength of English language skills and personal preferences. In the stimulated-recall interviews, some participants stated strong preferences toward voice-chat because they could express their thoughts and opinions better by talking to others because they could clarify if there was a misunderstanding. They thought that it was demanding to communicate via text-chat because they needed to write a lot to explain things and it was hard to clarify instantly when they misunderstood one another because of the delayed nature of text-chat. Moreover, two participants (Joey in Group 1 and Mike in Group 3) said they felt more pressure to be grammatically correct in text-chat and so participated less than they did in voice-chat because people tend to have higher standards for writing than with spoken language because errors in written text are more noticeable and less tolerated than those of spoken language (cf. Schoonen, Snellings, Stevenson & van Gelderen, 2009). Interestingly, certain other participants found that text-chat was easier and clearer to understand than voice-chat because they had some difficulties to listen and understand spoken language as ESL learners. Also, these people
mentioned that they could revisit the text-chat window to see messages from others at their convenience.

There were a few occasions in which technical problems occurred during the collaborative writing activities. It is evident that technical glitches constrain learners while engaging in collaborative activities (Zorko, 2009). The glitches created disturbances, which “are essentially actions that deviate from the expected course of normal procedure” (Engeström, 2008, p. 27). Some groups took them as a problem that was hard to solve, and it might well have been. For example, Group 3 had on a few occasions trouble understanding one another due to low audio quality. After a few attempts, Mike gave up providing feedback on Jill’s writing because Mike could not understand what Jill said due to low audio quality. However, Group 1 faced technical difficulties by assisting the person who was affected by the technical problems. Haru and Joey helped Mimi by dictating what Mimi wished to include in the summary when her computer keyboard did not work properly on the Google Docs.

Although note taking was not a requirement of participation of this study, many of the participants took notes during the debate meetings as a preparation for debate summary writing activities, and they used the notes as tools to mediate the collaborative summary writing activities. Participants’ uses of notes were most apparent in Group 2 and Group 4. However, how the notes mediated the collaboration of the groups’ work was quite different. While Lauren (in Group 2) spoke the most by sharing information from her notes, Victoria (in Group 4) utilized her notes to write the summary by herself rather than sharing missed information and constructing a collective memory regarding the debate meetings with her group members. In the later tasks, Victoria decided to take brief notes and tried to participate more in group discussions while they were engaging in collaborative summary writing.
The collaborative writing activities were not only mediated by instruments, but they were also mediated by the social mediators of rules, community, and division of labor (Engeström, 2008). Rules are any formal or informal regulations that affect how an activity is taking place. In this study, how to write debate summaries, how to write summaries collaboratively, and the time limit of the tasks were the primary rules that regulated the collaborative writing activities.

Since the participants had not been given any instructions on how to write a debate summary, they had to decide what to include and how to structure their debate summary. The participants seemed to have different understandings of the summary writing tasks. When their interpretations of the task were similar, participants tended to take similar actions. For example,
Haru and Joey tried to correct grammar errors in the summary because they thought the context of writing for an audience required correct grammar.

On the other hand, when participants had different ideas or understandings of the tasks, these differences seemed to cause disturbances in the collaborative writing activity. When this happened, the participants discussed with their group how to resolve the problem they had. Rules also were changed as participants took actions and made decisions on the problems. For example, in Group 4, Scott and Victoria discussed which perspective to use to refer to the speakers of the debate. Once they decided to use a third-person perspective, it became a rule and the members of Group 4 followed it to write the summary.

Not only did participants’ perceptions of group work influence how they interacted with others, but also their experiences of group work influenced or changed participants’ attitudes toward group work. Some participants became more in favor of working in groups after experiencing collaborative writing tasks and noticing the benefits of group work. For example, Mimi took advantage of group work by asking questions regarding debate content after she realized the benefits of working in group.

Some participants rediscovered certain benefits of group work through their collaborative writing activities. For instance, Eunbie in Group 3 reported that she preferred to work individually because she had negative experiences dealing with free riders in one of her groups in the past. However, she was satisfied with working with her present group because the group members respected one another and were responsible. Some other participants still preferred to work individually. Mike in Group 3 reported that he preferred to work individually because his career as a post-doctoral fellow (in biology and engineering) required him to work individually.

Interestingly, Joey, who expressed a strong preference for group work, mentioned that it
was important for him to work with compatible people who get along well and have similar working style. It seems that Joey made this comment because he had some conflicts with Mimi regarding the revision of the debate summary. Joey tended to make direct comments on Mimi’s writing in Task 1 and sometimes that behavior initiated conflict with Mimi. Haru mediated the conflicts by finding common ground so that they could work together.

However, Joey’s approach to group work changed in Task 2. The mode of communication seemed to come into play, changing Joey’s interaction with other group members. In the stimulated-recall interview, Joey explained how voice-chat worked better for him to communicate with others:

> When I communicated with others via voice-chat, I can express my emotion. Once I said, “Haru, I don’t understand.” Here, I was not criticizing what Haru did, but I was genuinely confused and needed some clarification. Without hearing a person’s tone of voice in text-chat, it seemed to create misunderstanding among people.” (translated from Korean)

According to Kitade (2000), participants using text-chat do not share a physical environments or non-verbal cues so the only way to understand each other is achieved by linguistic forms as input via a keyboard (i.e., text-chat message). Consequently, misunderstandings can happen when linguistic forms are interpreted differently from the intention of the sender by a recipient of the text-chat message.

Joey changed his communication style by asking questions and requesting information and this mitigated the directness of his comments. Haru mentioned that Joey became more responsive and helpful in the second task. A similar phenomenon was observed in one participant in Li and Zhu’s (2017a) study who left a comment in a demanding manner in a wiki collaborative writing, and his posting did not get any response from the other group members.
However, in a second task, he posted a message attempting to offer help in an approachable manner, and accordingly he got positive responses from other group members.

Participants’ interactions might have been influenced by their familiarity with the task. All four groups interacted with others more frequently in voice-chat due to its interactive and instantaneous nature. However, it was found that the total number of turns and decision-making episodes decreased from the first task via voice-chat to the second task via voice-chat in two groups out of three. For example, in Group 3, all three participants’ total number of turns decreased in half from Task 2 to Task 3. Participants seemed to become more familiar with the dynamics of a group writing task and with each other as they repeated the same type of writing three times. This interpretation is only speculative, however, because the nature and difficulty of the debate topics were not controlled, and a small number of participants used different modes of communication over only three tasks.

Also, familiarity with the debate topic seems to have influenced the group work. If a debate topic was familiar to the debate club members (e.g., if introverts make better leaders), they tended to have more points to discuss and rebut. As a result, participants had more things to write in their summaries. On the other hand, if the topic of debate was unfamiliar (e.g., one world currency), it seemed to be challenging for the club members to formulate their arguments, making it hard to summarize the debate arguments.

Participants’ collaborative writing activities were also mediated by their division of labor, which involved how the tasks were shared in the group and the debate community. Sharing the contents of debate by discussion, drafting a summary collaboratively, and giving each other feedback were identified as the tasks that the groups shared.

Storch (2004) underscored the value of investigating not only participants’ perceived goals
and roles for collaborative tasks but also if the goals and roles converged or diverged. If a pair did not have shared goals or did not recognize or appreciate their partner’s contributions, the interaction of these pairs tended to be non-collaborative. In the present study, there were some cases in which participants’ self-perceived roles matched or mismatched others’ perceived roles. When a self-perceived role matched the other-perceived role, this role tended to be encouraged by other group members and influenced positively the group interactions whereas mismatched roles were discouraged. For example, in Group 1, Haru’s facilitating role and Scott’s leading role were encouraged by other group members whereas Joey’s grammar correcting role was not appreciated and his corrections were only selectively accepted by Mimi. Some self-perceived roles were not recognized by others and so failed to be acknowledged or to influence the patterns of interaction. For example, in Group 2, Lauren’s attempt to guide her group was not recognized by the other group members.

Similar to previous studies on peer feedback (e.g., Guardado & Shi, 2007; Lee, 2010; Nelson & Carson, 1998), the participants in this study hesitated to provide feedback to their peers because they were not confident about the quality of their own and their peer’s feedback. One participant sought feedback on their writing from me (the researcher) during the stimulated-recall interview sessions, following the tendency reported in previous studies (e.g., Lee, 2010) that learners prefer a teacher’s feedback to their peers’.

Also, the present participants were reluctant to provide peer feedback or to edit each other’s writing because these actions may hurt other’s feelings. Some participants seem to still see writing as an individual and private activity (Bruffee, 1983) although they engaged in collaborative writing. A product of collaborative writing is “jointly owned with all writers sharing in the ownership of the text produced” (Storch, 2013, p.2). This phenomenon was
observed in both L1 (e.g., Grant, 2006; S. Wheeler, Yeomans, & D. Wheeler, 2008) and L2 (e.g., Arnold et al., 2009; Lee, 2010; Lund, 2008; Lund & Smørdal, 2006; Mak & Coniam, 2008) studies of web-based collaborative writing. For example, in the context of L1 collaborative writing, Grant (2006) reported one participant’s (Heatherw) attempt to contribute to the work of others by editing another’s writing. The rest of the group took Heatherw’s action as trespassing on someone else’s territory because she edited another person’s writing instead of informing the author what the errors were. In and L2 context, Lund and Smørdal (2006) observed that their participants added more content rather than amending or rewriting each others’ writing. Also, reporting on the same project, Lund (2008) observed some participants showed dissatisfaction regarding someone else amending their writing. He explained that these observations of the notion of ownership and individual accountability are based on the traditional assessment practice of school work which promotes and rewards individual efforts.

Interestingly, compared to other groups, Group 1 seemed to be less concerned with hurting each other’s feelings by giving comments, revising, or editing another members’ writing. They provided direct comments on their group’s writing. This behavior might be explained by the interpersonal closeness of Group 1. The members of Group 1 knew one another fairly well because they had been participating in debate meetings for at least six months at the time of their participation whereas the other three groups’ average period of participating in debate clubs was about two months. When engaging in collaborative tasks, Group 1 focused more on improving the quality of the debate summaries rather than worrying about hurting each other’s feelings. Interpersonal closeness of group members has been shown to mitigate face threatening behaviors in the activities of peer-feedback (Madio, Cassell & Ogan, 2017; Yu, 2015).

It is possible that participants did not correct each other’s writing because the main
purpose of the debate summary was collectively putting correct information about the debate meeting. Participants might have focused more on getting information right rather than getting language forms correct. Also, they might have seen debate summary writing as a low stake activity because it was voluntary and outside of any classroom activity that could have had consequence in being evaluated.

Finally, I would like to note that the participants in this study had not received any instruction on how to write a debate summary. I intentionally designed the study this way to observe how participants would negotiate with others and decide on the format of a debate summary. This intention supports the theoretical orientation of New Rhetoric L1 writing scholars (Bazerman 1988; Berkenkotter & Huckin 1995; Freedman & Medway, 1994). The New Rhetoric approach to genre emphasizes that genres are socially constructed (Miller, 1984) so they should be understood as “phenomena of unique social contexts rather than to derive principles directly for teaching” (Cumming, 2016, p.74). Further, some New Rhetoric scholars have argued (in a Strong Hypothesis) that explicit teaching of genres of writing is unnecessary and not useful although a Restricted Hypothesis acknowledges that teaching genres of writing may be helpful to certain learners under certain conditions (e.g., Freedman, 1993).

6.2) Implications

6.2.1) Theoretical implications

By investigating peer interactions in synchronous web-based collaborative writing and factors mediating small group collaboration, this study contributes to an understanding of how collaborative writing may operate and why collective performance varies by groups. In addition to confirming patterns of collaborative interaction observed in prior studies of second-language
writing, the present research found new collaborative patterns (i.e., facilitator/participants and leader/participants patterns) that are variations of an expert/novice pattern. These patterns differ from Storch’s (2002) interaction model, which was designed to examine dyadic, rather than triadic, interactions. Three members in a group create more affordances and possible interactions than are possible in a group of two. For example, Joey interacted with Haru differently than he did with Mimi, asking Haru more questions because she tended to be more responsive than Mimi. Mimi’s perception of the quality of Joey’s comments also impacted her interaction with the group, causing her to be selective in accepting the peer feedback.

The current study reinforces the idea that tasks are simply behavioral blueprints (Coughlan & Duff, 1994; Li & Kim, 2016; Li & Zhu, 2017a; Storch, 2004), and learners can act quite different from the expectations of teachers or researchers depending on their goals and understanding of the task. In this study, the participants were told to write a debate summary in a group of three. However, how they performed the summary writing differed. For example, each participant in Group 1 took charge of parts of the writing, and then they reviewed their respective parts together by reading out loud. The members in Group 2 took turns to play roles as a scribe. Group 2 reviewed and edited the summary as one of them wrote. Although the participants were given the same task (i.e., writing a debate summary), they realized and experienced a somewhat different activity (Leont’ev, 2014) depending on their goals, motives, and task representations.

This study extends earlier research (e.g., Blin & Appel, 2011; Storch, 2004) examining the factors that mediate students’ collaborations by drawing on the second generation model of activity theory. Particularly, the present study is unique in investigating English language learners in a voluntary debate club writing its debate summaries, observing their interactions outside of classroom contexts in situations that involved authentic, naturally motivated topics
and writing tasks.

Activity theory provides a lens to examine the complexity of web-based collaborative writing activities. Based on Leont’ev’s activity theory, which emphasizes on individual’s goals, motives, and the connections between motives and behaviors, this study found that participants’ goals and goal-directed actions influenced each group’s interaction patterns. For example, in Group 1, Haru’s goal of “helping each other to write a summary” directed Haru to act as a facilitator to write the summary together. If she did not have this goal for the task, she might have acted differently, for example, by working on some parts of the writing individually instead of facilitating the summary writing activity.

Engeström (2008) argued that the uppermost sub-triangle, which is based on the concept of Vygotsky’s mediation, is the tip of an iceberg. To understand the mediational structure of an activity system, the focus should be on its relationship with the other components (i.e., social mediators) of an activity system (Engeström, 1999). Engeström (1987/2015) introduced the third component of the interaction, community, to describe a three-way interaction among subjects, object, and community. By taking into account social mediators—including rules and division of labor—this study offers an explanation of what factors mediate L2 learners’ collaboration in synchronous web-based collaborative writing. By investigating social mediators, this study found that certain factors influencing group collaboration included task representation, perception of group work, matches/mismatches between participants’ self-perceived and other-perceived roles, and perception of peer feedback. These factors may be neglected in other research that has not considered these integral components of activity systems. Also, the present study observed that the activity system reconstructed itself by the continuous transformation between the components of the system (Engeström, 2008). For example, Mimi’s goals and goal-directed
actions (object) changed after her first experience of collaborative writing by her getting help and feedback from the other group members (division of labour).

6.2.2) Pedagogical implications

The present analysis provides certain pedagogical insights for teachers who wish to use web-based collaborative writing tasks. Students may have different interpretations of collaborative tasks and their roles in writing. Teachers should build on and facilitate learners’ personal goals for their writing and language development as well as their task performance. It is also important to provide clear task instructions and opportunities for learners to discuss how they will pursue a task together in order to avoid confusion, disputes, and misinterpretations. In this study, the participants did not have instructions on how to write a debate summary and were not explicitly told to discuss the structure of a summary before they wrote. This exploratory nature of the tasks may explain participants’ different task representations.

Encouraging students to set goals for the tasks and sharing them with others before the tasks may help them to engage in collaborative tasks better. Storch (2004) observed that group/pair work is beneficial for the participants’ language learning and development only when their goals are shared or complementary and focused on learning processes rather than performance. As a group’s interaction patterns influence its participants’ quality of collaboration, teachers should establish or provide guidelines for interacting with others (e.g., how to offer suggestions effectively and disagree politely) while orienting students toward the benefits of group work.

Having a leader in a group seems helpful to doing group work (e.g., Arnold & Ducate, 2006; Li & Zhu, 2017a). As observed in this study, some participants volunteered to take a
leadership role although it was not a requirement of participation of this study. Some of their attempts to lead the writing activities were recognized by other group members and they facilitated collaborative writing activities. However, one of them, Lauren, attempted to guide her group, but her efforts were not recognized by the other group members. Through the stimulated-recall interview, I had an impression that she liked to play a role as a leader to be helpful to the group, but she seemed uncomfortable taking full charge of the tasks. If Lauren was assigned by a teacher to play a role as a leader, she might have been an active leader and been able to influence the collaborations of her group.

However, just assigning a leader role would not do the trick. For example, in Li and Zhu’s (2017a) study, a leader was assigned to each group to monitor and facilitate wiki writing activities. The groups were not given any instruction or guidelines on how to facilitate the collaborative writing activity. Ironically, one of the participants who was assigned as a leader contributed the least to the writing task in his group. It is important to educate leaders how to monitor and facilitate group activity. Particularly, providing guidelines about how to cope with conflicts among members during the activity would be helpful.

The modes of communication for collaborative writing should be carefully selected according to the purpose of tasks and learners’ language proficiency. In the current study, voice-chat seems to have facilitated collaboration better than text-chat did. Participants preferred voice-chat because of its interactive and instant nature. The participants in this study mostly had upper-intermediate to advanced English language proficiency, and therefore they were learners who had stronger verbal communication skills than beginners in English would. It is possible that text-chat could be more effective for lower proficiency learners because the pace of conversation is slower than voice-chat and also group members could see what others expressed or did in the
text-chat window. Moreover, blended approaches may encourage language learners to participate more actively in collaborative writing (e.g. Oskoz & Elola, 2014 Zorko, 2009). For example, Zorko (2009) observed that her participants were encouraged to engage in problem-based collaborative writing tasks when they combined uses of wikis and face-to-face interactions.

Teachers’ feedback on collaborative writing regarding language forms may be helpful. As in many prior studies, the present participants were not always confident about the decisions they made regarding language forms. Indeed, some sought my feedback during the stimulated-recall interviews, wanting to assign me the role of advanced peer or tutor. Also, it is important for teachers to explain the characteristics and purposes of collaborative writing so that students understand what to expect to be doing during collaborative writing tasks. For example, a teacher can discuss the concept of co-ownership with students before a writing activity so that they understand collaborative writing is not simply about dividing up shares of writing and combining individual’s text into one at the end.

6.3) Limitations and future research

The present study has several limitations worth addressing in future research. First, this study was conducted within a relatively short period of time and restricted activity (i.e., two or three tasks over four weeks). It remains to be seen what or how factors that mediate group interaction may exert influences in the long term. For example, if group members work together for a while and they get to know more about other members and their’ working style, that knowledge and familiarity may influence how they interact with one another, as shown in Group 1’s data. It would be useful to explore how time factors and constraints interact with group interactions and their mediating factors.

Second, the participants of the current study were highly motivated and in a voluntary,
self-defined context outside of a classroom or educational program. Besides sharing their writing with debate club members and receiving some (mainly complimentary) feedback, the participants were not under pressure to score high marks and their written summaries were not formally assessed. Participants could experiment with the collaborative writing activity without worrying about evaluation of their performances beyond my observing them for research purposes. Thus, the present learners’ goals and motives for collaborative writing may be different from those of learners’ in a classroom setting. For future research, systematic comparisons may be useful between natural contexts of synchronous web-based collaborative writing and those of classroom settings. Participants’ goals on tasks may vary by contexts and purposes, especially when formal assessment of performance is involved (e.g., Yang, 2014).

Third, in this study, only two synchronous modes of communication were investigated to see how the modes of communication influenced group interactions. More extensive comparison of interaction patterns among face-to-face, text-chat, voice-chat, and video-chat would provide insights into how (web-based) collaborative writing activities can be designed and facilitated in L2 classes. Also, investigations comparing synchronous and asynchronous modes of CMC would be helpful, particularly to see if different learners benefit from such different modes and timing of communication. For future studies, investigations of group interaction in blended approaches, such as Google Docs and video-chats or Google Docs in face-to-face communication, would be helpful to provide insights on how mixed modes of communication mediate students’ collaborative writing. This suggestion follows Storch’s (2010) call for more research on blended approaches in L2 collaborative writing.

Fourth, students in this study only performed the same types of writing three times. It is possible that other patterns of interaction may be observed with various genres of writing, above
and beyond summary debates, such as narrative, argumentative, and expository writing.

Although this study did not set out to investigate the connection between interaction patterns and different task types, such an investigation would helpful to deepen understanding of collaborative writing activities in future research.

Fifth, the current study could not offer participants options to select their own group members due to the restriction of the study design (i.e., requiring one participant who speaks a different L1 from the other two participants to make the group’s communication authentic).

Previous studies on group formation (e.g., Hassaskhah & Mozaffari, 2005; Myers, 2011; Russell, 2010) reported that students expressed strong preferences for self-selected groups. Self-selection allows students to choose peers with whom they are familiar or comfortable (Storch, 2017), and that situation may make them more willing to share ideas and feel comfortable to provide feedback and accept peer criticisms. Storch (2017) suggested that working with familiar peers is conducive for collaboration. Future research may usefully investigate if and how group interactions differ between assigned groups and self-selected groups.

Finally, this study focused on how participants interact with one another and what mediates their collaboration. It will be beneficial for future research to investigate in depth the links between how group/pair interactions influence learners’ actual text production and its quality (e.g., Li & Zhu, 2017b) in different modes of CMC.
References


Kitade, K. (2000). L2 learners’ discourse and SLA theories in CMC: Collaborative interaction in


Appendices

Appendix A: Survey Questionnaire 1

Part 1: Background Information

A. Participant’s pseudonym: ______________________________________________________
   (Please choose a false name that you wish to use in this study to protect your privacy.)

B. Age: ___ years old

C. Gender: Female □  Male □

D-1. Ethnicity: __________________________ (e.g. Japanese, Chinese-Canadian)

D-2. What’s your strongest language? _____________________________________________

D-3. What languages do you know well? __________________________________________

D-4. Do you have a language proficiency test score (e.g. TOEFL, IETLS)? Yes □  No □
   If yes, what kind of test did you take? __________________________________________
   When did you take the test (e.g. May 2013)?____________________________________
   What’s your overall score? ________________________________________________

E. Status: □ Student (What are you studying? ________________________________ )
   □ Employed (What is your job? _____________________________________________)
   □ Other (please specify) ___________________________________________________

F. Years staying in Canada and other English-speaking countries ___ years ___ months

G. How long have you participated in debate meetings? _______ times (_______ months)

Part 2: Goals of the participants

A. Why do you participate in the debate club? Please provide three reasons.

1. ___________________________________________________________________________

2. ___________________________________________________________________________

3. ___________________________________________________________________________
B. What are your goals for writing the summary of the debate meeting? Please provide **three** goals.

1. ________________________________________________________________

2. ________________________________________________________________

3. ________________________________________________________________
Appendix B: Survey Questionnaire 2 & 3

Date: _______________

Participant’s pseudonym: _____________________

Task: A collaborative summary report using □ text chat □ voice chat

What are your goals for writing a summary? Please provide three goals.

1. __________________________________________________________________________

2. __________________________________________________________________________

3. __________________________________________________________________________
Appendix C: Stimulated-recall interview protocol

1) Questions about individual goals

1. What were the goals you wished to achieve through the collaborative writing tasks?
2. What did you think you needed to do in this task?
3. What is a good debate summary?
4. Did you achieve your goals? Why or why not?
5. What would you like to do better in the next task?

2) Questions about collaboration using technologies

1. How did you feel about working in a group?
2. What do you think about your contribution to the task?
3. What do you think about the other group members’ contributions to the task?
4. Did you learn something new through this activity?
5. What do you think about using Google Docs to work with others? Do you find it helpful? Why or why not?
6. Between text-chat and voice-chat, which one do you prefer? Why?

3) Questions about details of writing tasks

1. What was your purpose with this action?
2. What do you think about the others’ responses?
3. What do you think about the others’ suggestions on the part you wrote?
4. What did you think was your role in the task?
5. Do you think people in your group took on specific roles during the task? If so, what were they?

6. Do you think your summary report is successful? Why or why not?

7. Do you have any other comments?
## Appendix D: Transcription conventions

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
<th>Example of use</th>
</tr>
</thead>
<tbody>
<tr>
<td>((   ))</td>
<td>Researcher’s comments on describing non-verbal actions or activities on participants’ computer screens.</td>
<td>Haru: currency of super currency sounds like a bit weird for me ((Mimi replaced “f” with “r”. (of-&gt; or)) Haru: it's good thanks mimi Mimi: of-&gt; or</td>
</tr>
<tr>
<td>...</td>
<td>Short pause, between 0.5 – 3 seconds</td>
<td>Scott: I will write down the… what we gonna do. So first, uh-</td>
</tr>
<tr>
<td>(# of seconds)</td>
<td>Timed pause</td>
<td>Lauren: ill do eunbie then (24) Carey: okay</td>
</tr>
<tr>
<td>xxx</td>
<td>Inaudible utterance</td>
<td>Yuko: Yeah. How do you like to xxx? Oh!</td>
</tr>
<tr>
<td>hhh/ hahaha</td>
<td>Hearable aspiration in CA transcription convention. This symbol was used to mark laughter in this study. If a person laughs louder and sounds like s/he said hahaha, I put hahaha. (<a href="http://www.sscnet.ucla.edu/soc/faculty/schegloff/TranscriptionProject/aspects10.html#">http://www.sscnet.ucla.edu/soc/faculty/schegloff/TranscriptionProject/aspects10.html#</a> .)</td>
<td>Yuko: Hh, sorry. Yuko: And she said about…uh… Rob Ford? KFC. Lauran: Hahaha.</td>
</tr>
<tr>
<td>“ ”</td>
<td>A participant is referring to the part of text they are working on or reading it aloud.</td>
<td>Haru: “Extroverts are people who are very friendly, outgoing, talkative, outspoken”</td>
</tr>
<tr>
<td>=</td>
<td>A participant’s utterance was disturbed but is continuing (in his/her next turn.)</td>
<td>Mimi: You can do your thing and we can do our things= Haru: Okay. Mimi: =and then make a review later.</td>
</tr>
<tr>
<td>-</td>
<td>A participant didn’t finish her/his sentence and there is no following turn.</td>
<td>Ryan: I'm not sure where is-</td>
</tr>
<tr>
<td>° °</td>
<td>Degree signs are used to mark the utterance that is noticeably quiet or soft. Double degree signs (e.g. “°°yes°°”) indicate a particularly quiet voice such as whispering (Hepburn, 2004).</td>
<td>Ryan: °If we have children…we should give up…opportunities to build…to develop…opportunities at work. This is because parents who have a children…they may spend a lot of time take care- °.</td>
</tr>
<tr>
<td>W-O-R-D</td>
<td>Spelling out the word.</td>
<td>Yuko: Do you know the spelling? Sungho? Carey: S-U-N-G-H-O</td>
</tr>
<tr>
<td>______</td>
<td>Underscoring indicates a word or a phrase that is stressed via pitch and/or amplitude.</td>
<td>Scott: What’s up?</td>
</tr>
<tr>
<td>[ ]</td>
<td>The beginning and end of the overlapping talks.</td>
<td>Victoria: Uh-[huh. Scott: [And I will write down my sentences first</td>
</tr>
</tbody>
</table>
| “i c” | Quotations from spoken text appear in quotation marks in the main text of the paper. | 1 Victoria: what does 1 mean  
2 Scott: first is opening for debate  
3 Victoria: i c  
4 Scott: 1 2 is number of speak[er] |
| “the amount of resources will determine.” | Quotations from a written summary text appear in italics in the main text of the paper. | 1 Haru: what does “the amount of resources will determine”?  
2 resources will determine”?  
3 what does it mean?  
4 Mimi: kind of nature resources such as gas, oil  
5 Haru: did he mention that? I might  
7 not understand. Thanks. |
| **Boldface text on Google Docs** | Boldface text on Google Docs indicates writing/changes that a participant made in a debate summary. | ((On Google Docs))  
Since they made the rules, they have to show good behavior. |
Appendix E: Information letter/consent form

**Synchronous small-group collaborative writing via web-based word processing:**
What facilitates or constrains learners to achieve their goals in summary reports?

**Investigator:** Hyeyoon Cho  
**Faculty Supervisor:** Dr. Alister Cumming  
Department of Curriculum, Teaching & Learning, OISE/University of Toronto

**Purpose of the study**
The purpose of this study is to discover how English language learners collaborate with two other people when they compose a text via Google Docs and what their perception of the activities are. In addition, this study will explore how collaboration through Google Docs facilitates and/or constrains second language (L2) writers to achieve their goals in the collaborative writing tasks.

**Participants**
English as a second language (ESL) learners who are participating in English debate meetings in Toronto, Canada on a weekly basis.

**What participants will be expected to do**
If you agree to participate in the study, you will be asked to do the following:

1) **Survey (10 minutes. The survey will be given in the first training session.)**
You will be asked to provide background information about yourself, the reasons for attending the debate meeting, and your goals for doing the writing task.

2) **Two training sessions (30minutes X 2 sessions= 1 hour)**
You will have two training sessions to learn 1) how to use Google Docs and text chat and 2) how to use and Google+ Hangouts and voice chat. Demonstration of Google Docs and Google+ Hangout will be given corresponding to the tasks. For example, when you write a summary via text chat you will get training on Google Docs and text chat.

3) **Two summary reports on the debate meetings (1hour X 2 sessions= 2 hours)**
You will be asked to write two summary reports of the debate meetings in a group of three: once via Google Docs and text chat, and then via Google+ Hangouts and voice chat. Each activity will last about an hour. These activities will screen recorded and audio recorded.

4) **Two individual interviews (1 hour X 2 sessions= 2 hours)**
Every time your group completes a writing task, you will be asked to participate in an individual interview within 1-2 days. You will watch the screen recordings with the researcher and she will ask questions about your performance in the collaborative writing tasks. These interviews will be audio recorded.
- Data will be collected over about two to four months starting in **April 2013**. Actual data collection period for each group will be two weeks.

- The total amount of time required for participating in all the procedures mentioned above will be **around 5 hours**. Interviews, training and summary writing sessions will be scheduled at your convenience.

**Participants’ Rights**

- **To Ask Questions at Any Time:** You may ask questions about the research at any time.
  
  - For questions, please contact the investigator at 647-522-3380 or hyeyoon.cho@mail.utoronto.ca, or her supervisor Dr. Alister Cumming at 416-978-0276 or alister.cumming@utoronto.ca.
  
  - For information about your rights as a research participant, please contact the Office of Research Ethics at ethics.review@utoronto.ca or 416-946-3273.

- **To Withdraw at Any Time:** Your participation in the study is absolutely voluntary. If you wish to stop participating in any parts of the procedures, refuse to answer any question, or withdraw from the study altogether, you may do so without any negative consequences. You may also require that your data be destroyed.

- **To Confidentiality:**
  
  - Data obtained from the study including surveys, audio and video files and written transcripts of interviews and summary reports will be treated with absolute confidentiality.
  
  - To preserve your confidentiality, you should choose a pseudonym at the beginning of the study. This pseudonym will be used throughout the data collection and the writing of the dissertation.
  
  - The research involves writing summaries in groups of three members of the debate club, so two other people participating in the activities will be aware of your participation too, and you will be aware of their participation also.
  
  - The data will be encrypted and kept in a secure place. Only the researcher and the faculty supervisor mentioned above will have access to this information. Upon completion of my thesis, all data will be destroyed within five years.

**Benefits**

- You will have opportunities to practice English writing and communicate with others in English during the collaborative writing tasks.

- You will learn about online collaborative writing tools such as Google Docs, which may be useful for your future writing project or collaboration in a workplace.

- In appreciation of your participation, the researcher will provide assistance in and feedback on your English writing.

**Risks**

There are no risks involved in this study other than writing a summary with other members and sharing it with the debate club. There might be some occasions when members disagree with each other while they perform the tasks, and this might make some participants feel
uncomfortable, but disagreeing each other and critiquing each other’s argument are common practices in debate meetings. To minimize discomforts, participants can choose whom to work with while writing the summaries.

**Signature**
I certify that I have read and understood the above, that I have been given satisfactory answers to any questions about the research, and that I have been advised that I am free to withdraw my consent and to discontinue participation in the research at any time, without any prejudice or loss of benefits. I agree to allow Hyeyoon Cho to use findings, examples, and quotations from the study for purposes of publication, academic presentation, and teaching, provided that my confidentiality is maintained.

Name: __________________________ Signature: __________________________

Date: __________________________

![University of Toronto OISE logo]