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LEARNING LANGUAGE THROUGH COLLABORATION

BY

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DISSERTATION

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ABSTRACT

This study explored the effects of meaning-focused and form-focused instruction on aspects of foreign-language learner's spoken English, argument production, and attitude towards English use. Four freshman English classes (N=136) from a university in Taiwan participated in this quasi-experimental study. Two classes were randomly assigned to either the Collaborative Reasoning (meaning-focused instruction) condition or the Dictogloss (form-focused instruction) condition. Students in the two conditions discussed the same four topics, one topic per week, and each topic for a 60-minute class session. A battery of pre and posttests was administered, including an open-ended speaking task, attitude surveys, a standardized English test, and a reading fluency test.

The major finding of the study was that students who had meaning-focused Collaborative Reasoning discussions increased their fluency in the posttest speaking task, while learners who participated in form-focused Dictogloss discussions had reduced fluency, after controlling for pretest fluency and other language proficiency measures. A corroborating finding is that Collaborative Reasoning students had higher posttest reading fluency than Dictogloss students, controlling for pretest reading fluency and other factors. The speaking fluency and reading fluency results suggest that Collaborative Reasoning students may have automatized core linguistic processes more than Dictogloss students.

Overall, analyses of students' talk suggested that meaning-focused instruction may nurture language performance that is more communicative, and form-focused instruction may foster language performance that is more restricted but accurate on target forms. The findings support the idea that conversational interaction is a foundation for language development. Evidence from this study suggests that incorporating meaning-focused instruction in the classroom could be one

way of nurturing mastery of English as a communicative tool in an English-as-a-foreign-language context.

To my family

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CHAPTER 1

INTRODUCTION AND THEORETICAL BACKGROUND

English is a global language that enables access to economic, social, and educational opportunities, and is the most widely taught language (Graddol, 2006), since proficiency in English is critical to being competitive on an international scale (Guilherme, 2007). Across the globe, one way of distinguishing environments for English learning is if English is used in everyday situations outside of the language classroom. For instance, the BANA countries, which stands for British - American - New Zealand - Australian (Holliday, 1994), are English as a Second Language (ESL) contexts. Most nations in Europe and Asia are considered to be English as a Foreign Language (EFL) contexts.

The context for this study is the East Asian and Pacific region. In the countries in this region English is spoken infrequently outside of the classroom. The countries share many commonalities in goals, policies, and practices in English teaching and learning. English is a compulsory subject starting in primary school (Burri, 2017; Hu & McKay, 2012; Spolsky & Moon, 2012). It is a fundamental component in high-stakes assessments for entering high school and university (Butler & Iino, 2005; Cheng, 2008; Choi, 2008; Hu, 2002; Song, 2011). Outside of education, work opportunities may depend on performance on standardized English tests (see Butler & Iino, 2005 for Japan; Hu, 2009, or Jiang, 2003, for China; Choi, 2008 for South Korea).

Despite so much emphasis on English, the ability to actually understand and speak the language is difficult to acquire in East Asia. Unlike ESL environments where knowing how to use English relates to almost everything that one does outside of the home, in the EFL environments typical in East Asia, language learners rarely need to express themselves in English.

ESL learners are exposed to a variety of forms of English, such as academic, colloquial, or vernacular English, on a frequent basis. In contrast, EFL learners have very little opportunity to hear or use different varieties of English in their daily lives. Under these circumstances, what happens in the language classroom becomes a crucial experience for EFL learners to develop communicative competence in English.

However, language classrooms in the East Asian-Pacific region have not provided a decent context for students to acquire facility in using English. Instead of emphasizing communication, instruction stresses language forms and employs methods such as translation and grammar drills. Although criticized as ineffective (Butler, 2017; Butler & Iino 2005; Hu 2002; Li, 1998; Park, 2009), these practices have proved resistant to change.

Beginning from the late 1980s, national education policies have backed a communicative approach to foreign language teaching to foster learners' communicative competence (Butler 2005, 2017; Littlewood, 2007; Nunan, 2003). However, a clear tension exists between policy and practice (Yu & Wang, 2009). This tension has been reported in several countries (Choi (2008) in South Korea; Orafi and Borg (2009) in Libya; and Underwood (2012) in Japan). For instance, Chinese students are said to graduate from higher education with “deaf and dumb English,” lacking any real proficiency in listening or speaking (Liu & Dai, 2003, p. 8).

One reason for the disappointing implementation of communicative English teaching is washback from high-stakes tests (e.g., Li & Baldauf, 2011; Zhang & Liu, 2014). Instruction is still test-driven, and tests assess grammatical structures, vocabulary, and comprehension of short passages (Zhang & Liu, 2014). Students may ace the exams, but lack the motivation to go beyond what is required by multiple-choice reading comprehension questions and short-paragraph essays because the effort will not earn them additional points.

While many research studies have highlighted the mismatch between policy and practice and examined other multifaceted factors influencing the malpractice of communicative approaches, the author is interested in where less research has investigated: the learning outcomes from communicative and interactive English language classroom experience for learners who have limited opportunities for extended talk in the second language. This study contributes to the necessary research for better understanding of what learners gain from exposure to communicative instruction (Graves & Garton, 2017, p. 475). It also contributes to the less-explored study of interaction and language development in a foreign-language learning environment.

This study looks into the influence of two kinds of instruction that involve speaking and peer communication, meaning-focused and form-focused output-based instruction, on EFL students' expressive oral language and attitudes toward English use. This paper will first define the terminologies and describe the theoretical background for output-based, meaning-focused, and form-focused second language instruction, then it will identify the areas that need further research. The design of EFL classroom interventions will then be introduced, followed by results from analyses of the collected data, discussion of the findings, and conclusion and implications.

Output-based Second Language Instruction

'Output-based' second language instruction emphasizes collaborative dialogue among students, which provides ample opportunities for speaking, as well as listening. During collaborative dialogue, learners construct linguistic knowledge through identifying linguistic problems and attempting to solve them together (Swain, 2000; Swain, 2006; Swain & Lapkin, 2002). As learners try out new language forms to meet communicative needs, they may move from focusing solely on meaning to attending to syntax (Swain, 1995). The fundamentals of

output-based instruction derive from two hypotheses, the Interaction Hypothesis (Long, 1996) and the Output Hypothesis (Swain, 1985), and is reinforced by the Interactionist Approach (Gass & Mackey, 2007).

Interaction Hypothesis

Hatch's (1978) statement that "language learning evolves out of learning how to carry on conversations" (p. 404) has spurred research investigating the role of interaction in second language development. According to the Interaction Hypothesis (Long, 1996), language learners and their interlocutors adjust linguistic forms, message content, or conversational structure to solve communication problems and achieve mutually-acceptable understanding. With mutual comprehensibility established, learners may attend to and acquire the new forms used in the interaction (Long, 1996, pp. 451-452). This process is referred to as negotiation of meaning (Long, 1996, p. 418), which is hypothesized as an opportunity for language acquisition since by negotiating meaning connections are made between language input, learners' internal linguistic resources, and language output.

Negotiation of meaning is hypothesized to be more prevalent in heterogeneous small groups of language learners (Long & Porter, 1985, p. 224). In contrast to the main type of instruction in language classrooms, teacher-led whole-class instruction, where the instructor may speak for over half of the duration of a class period, learner-learner small group work seems to be especially beneficial to promoting learners' amount and variety of second language practice (Long, Adams, McLean, & Castaños, 1976; Long & Porter, 1985).

Output Hypothesis

Swain (1985) proposed in her Output Hypothesis that comprehensible language output could significantly contribute to second language acquisition. Negotiation of meaning facilitates

language acquisition not only because of comprehensible input, but also because learners are pushed to produce output that is precise, coherent, and appropriate (p. 249). Output may facilitate cognitive processes that require attention to linguistic accuracy, as it provides opportunities for learners to notice mismatches between what they want to express and what they are able to express. Learners may also test out hypotheses about the target language. As learners try out new language forms and structures and stretch their interlanguage to meet communicative needs, they may move from focusing on meaning to attending to the syntactic structure of the target language (Swain, 1995). On the assumption that language mediates learning when language is used to talk about itself, and that linguistic knowledge is internalized through its co-construction during interaction, Swain (2000) argues that collaborative dialogue about linguistic problems and solutions will boost learners' second language accuracy.

Interactionist Approach

The interactionist approach proposes that learners' attempt to mend communication breakdowns between them and their interlocutors is helpful to second language development (Mackey, Abbuhl, & Gass, 2012, p. 9). Since the mid-1990s, a series of investigations of language output modified during interaction have been completed (Mackey, Abbuhl, & Gass, 2012, p. 10), and the positive effects of interaction on learning grammatical and lexical features has been supported (Keck, Iberri-Shea, Tracy-Ventura, and Wa-Mbaleka, 2006; Mackey & Goo, 2007). Keck et al., (2006) urged researchers to turn their attention from whether interaction has an effect or not to how interaction effects vary in magnitude and duration depending on aspects of task design. Different task dimensions influence the negotiation moves and feedback between learners and their interlocutors, as well as the fluency, accuracy, and complexity of learners' language use (Ellis, 2003; Samuda & Bygate, 2008; Willis & Willis, 2013). Therefore, it is

beneficial for practitioners to understand the possible effects that a specific type of task can have to promote interaction and second language development in classroom practice (Mackey, Abbuhl, & Gass, 2012, p. 15).

Meaning-focused and Form-focused Instruction

Research in second language acquisition has distinguished between formS-focused instruction, form-focused instruction and meaning-focused instruction (Ellis, 1999, 2001; Long & Robinson, 1998; Norris & Ortega, 2000; Spada, 1997; Williams, 2005). The formS type of L2 instruction, in which individual language elements and rules of the language are isolated from context or communicative activity to become the object of instruction (Doughty & Williams, 1998, p. 3; Loewen, 2015, p. 58), falls outside of the scope of this project and will not be further discussed.

Meaning-focused instruction, also known as communication-focused instruction, “involves learners in comprehending, manipulating, producing, or interacting in the target language while their attention is principally focused on meaning rather than on form” (Nunan, 1989, p. 10). When receiving meaning-focused instruction, learners mainly focus on communicating relevant meanings and authentic messages (Ellis, 1999, 2001). This type of instruction stemmed from the Comprehensible Input Hypothesis (Krashen, 1985) and the Comprehensible Output Hypothesis (Swain, 1985). These hypotheses assume that language learning is optimized through input comprehension and form-meaning-mapping noticing through interaction (Ellis, 1999). Evaluations of immersion language programs (Johnson & Swain, 1997; Johnstone, 2002) have shown that even though students present high levels of L2 receptive skills, their productive skills, especially in producing extended discourse that is “grammatically accurate, lexically precise[,] and sociolinguistically appropriate” are relatively limited (De Graaff

& Housen, 2009, p. 736). This has been interpreted to mean that students neglect accuracy when focusing entirely on communication and, thus, that they typically do not reach high levels of linguistic competence from exclusively meaning-focused instruction (Ellis, Basturkmen, & Loewen, 2002, p.421). Consequently, many immersion and content-based L2 programs focus on form as well as meaning (Ellis, 2005). However, the implications of studies of language learning in immersion contexts for foreign language instruction contexts should perhaps be questioned, because of the huge difference in support for the usage of second language in the two environments. The problem in the foreign language environment may not be pulling attention to form, but getting enough time and attention to communication.

While maintaining the primary focus of attention on meaning, form-focused instruction aims at drawing learners' attention to "grammatical structures, lexical items, phonological features [,] and even sociolinguistic and pragmatic features of language" (Ellis et al., 2002, p. 420; De Graaff & Housen, 2009, p. 736). Learners participating in form-focused instruction would focus on meaning and would pay attention to form incidentally in context to meet communicative needs such as problems with comprehension or production (Long, 1991, p. 46; Long & Robinson, 1998, p. 23; Long, 2015, p.27). The theoretical underpinning of form-focused instruction is that specific features of language could go unnoticed in exposure unless learners' direct attention to these features and their awareness of these features reach a level high enough for them to become aware of and to internalize these features (Schmidt, 1995). Form-focused instruction is theorized to require learners' brief and simultaneous attending to form, meaning and use during one cognitive event (Doughty, 2001, p. 211). Salience and communicative need foster optimal contexts for noticing and acquisition to happen, since resolving communication problems tend to make form salient to learners (Long, 1991). Doughty (1991) investigated the

effects of enriched input on adult intermediate learners' acquisition of relative-clause structures and found that while both instructional treatments were more successful than the control treatment (read the text with no assistance), focusing on form (highlighting target language structure in context) facilitated learners' comprehension of text better than providing explanations and examples of the rules for relativization.

Issues with Existing Research

Much of the contrast between meaning-focused and form-focused instruction have been mainly based on inferences from research conducted separately for either method (Spada & Tomita, 2010). Research on direct comparisons would help confirm or reevaluate such deductions. Comparison studies have shown results that suggest attending to meaning and form leads to better outcomes in learning complex syntax than attending solely to either form or meaning alone (e.g. Alanen, 1992, 1995; Doughty, 1991; Hulstijn, 1989; Leeman, Arteagoitia, Fridman, & Doughty, 1995; Lightbown & Spada, 1990; Lyster, 1994; Robinson, 1995, 1996; Spada & Lightbown, 1993; White, 1991). However, the conditions compared in these studies did not offer abundant opportunities for interaction and extended output, but rather focused more on passively receiving input in the focus on meaning conditions and input enhancement for the focus on form conditions (please see Alanen, 1992, 1995; Doughty, 1991; Leeman et al., 1995; Lyster, 1994 for highlighted, underlined, color-coded, or italicize target structure to promote noticing or linguistic rule explanation).

Leeman et al.'s design (1995) incorporated output in the form of a debate for the focus on form and focus on meaning conditions, but the slight advantage of the focus on form condition was supported by scores obtained for pre and posttests from only five subjects. The generalizability of the study results is doubtful. With minimal interaction and output in any of the

conditions compared, it is difficult to judge the effects of any instructional methods that attend to meaning and communication since neither the Interaction Hypothesis nor the Output hypothesis could be tested.

Few studies had compared the effects of meaning-focused instruction and form-focused instruction, and often times outcome measures were biased toward assessing linguistic forms. For example, Yabuki-Soh (2007) evaluated the effects of form-based, meaning-based, and form-plus-meaning based instruction on Japanese as a foreign language learners' learning of Japanese relative clauses and ability to generalize different types of relativization. Even though pre-posttest comparisons of comprehension and sentence-combination tasks indicated that learners who received form-focused instruction outperformed the other two groups, the results need to be taken with a grain of salt since the measurements are highly form-oriented and thus may not be valid measures for all three kinds of instruction.

One main issue in comparisons of different instruction methods is the validity of assessments. Many studies claimed to have investigated language learning, but the assessments may not have been suitable (Toth, 2008; see Assia & Said, 2013 for an example). For instance, while Norris and Ortega (2000) concluded in their meta-analysis that explicit instruction is more effective than implicit instruction and that form-focused instruction leads to equivalent and large effects, they also mentioned that the assessments used in the primary studies were mostly measuring explicit knowledge *about* language rather than knowledge *of* language.

For measuring knowledge *of* language, increasingly researchers are employing open-ended performance measures of L2 production. Only 16 percent of the outcome measures included in Norris and Ortega's 2000 meta-analysis required spontaneous extended communicative use of the L2 (Spada & Tomita, 2010, p. 288; Spada, 2011). In Mackey and

Goo's (2007) meta-analysis, 52 percent of the outcome measures were open-ended language production tasks, including speaking as well as writing tasks.

As different test types measure different aspects of L2 acquisition, multiple-measures research designs that combine both process-oriented, interpretative measures and product-oriented experimental measures, is becoming increasingly common (De Graaff & Housen, 2009, p. 743; Ellis, 2001; Norris & Ortega, 2000). Multiple outcome measures focusing on different aspects, such as accuracy and fluency, should be utilized to avoid bias in favor of one instruction method over another (Long, 1991, p.48). Mixed-methods examining both qualitative and quantitative data would improve the generalizability of study results (Bowles & Adams, 2015; Gass & Mackey, 2007, p. 190). To conduct robust comparisons of different instructional methods, studies with larger samples to increase power (Plonsky & Gass, 2011, p. 357; Plonsky & Kim, 2016) are needed. For depth of understanding, more research is needed that integrates descriptive work with investigations of the effects of Language Related Episodes (LREs, any lexis-based or form-based part of a conversation where learners talk about the language that they are using, correct themselves or others, Swain & Lapkin, 1995) in pair (e.g., Washburn & Christianson, 1995), and group work for L2 learning (Philp, Walter, & Basturkmen, 2010, p. 276).

Studies should employ pre/post-test control group design and monitor the implementation of treatments. Both immediate and delayed post-tests should be administered to evaluate whether the effects from receiving a certain treatment is short- or long-term (Long, 1991, p. 48). By reporting data more thoroughly, “specifically (a) exact p-values to accompany the results of all statistical tests, (b) standard deviations along with all means, (c) confidence intervals, and (d)

effect sizes”, clarity about interactionist research would be much improved (Bryfonski & McKay, 2017; Plonsky & Gass, 2011, p. 357).

Issues in Assessment of Language Outcomes

In terms of what kinds of outcomes to examine, since teaching linguistic forms, especially grammar, is prevalent in language pedagogy (De Graaff & Housen, 2009; Ellis et al., 2002), most output-based instruction studies have focused on whether the instruction has contributed successfully or unsuccessfully to the development of particular aspects of grammar. Thus, the center of attention has been on form rather than other aspects of communication. But precision in use of forms is only part of L2 learning. Hence, the author proposes below what output-based instruction should consider expanding on and consider assessing in instructional research.

Oral language production. "One learns to speak by speaking" (Swain, 1985, p. 248). Yet we don't know much about the effects of output based pedagogy on oral language production since most of the focus has been on written tasks. Learners usually have much more practice of “communicative exchanges that require a precise and appropriated reflection of meaning” in writing than in speaking, so their knowledge of the target language may be weakly shown in oral performance (Swain, 1985, p. 251). Furthermore, since the focus of research on language instruction has usually been on particular forms, we lack a comprehensive understanding of oral language development, whether for instance there are trade-offs between a speaker's precision in using certain forms and the speaker's fluency. In the present study, participants completed an individual speaking task before and after instruction. Speaking performance was coded for many aspects of language use.

Willingness to communicate and language anxiety. Willingness to communicate (WTC) in one's second language is defined as "readiness to enter into discourse at a particular time with a specific person or persons using a L2" (MacIntyre, Dörnyei, Clément, & Noels, 1998, p. 547). According to MacIntyre et al. (1998), WTC not only affects L2 acquisition at the individual level, but also is a goal of L2 instruction. The higher the learners' WTC, the more opportunities for practice in an L2 and authentic L2 usage there would be (MacIntyre, Baker, Clément, & Conrod, 2001, p. 382). Along the same lines, language anxiety refers to the feeling of tension or apprehension associated with second language use, including speaking, listening, and learning (MacIntyre & Gardner, 1994, p. 284). Language anxiety negatively correlates with measures of L2 performance. WTC and language anxiety may not be the same in learners' L1 and L2 (Cao & Philp, 2006; MacIntyre & Gardner, 1994). Rather, learners' own perceptions, social factors, context, and situational variables affect their WTC, which is a construct that changes over time (Kang, 2005; Léger & Storch, 2009; MacIntyre et al., 1998).

Listening to the teacher is the most frequent experience for students in Chinese EFL classrooms (Liu & Littlewood, 1997, p. 379). Not all students even have the chance to practice oral English in class, let alone outside of class (Chen & Goh, 2011, p. 339). With such limited opportunities for extended talk, it is reasonable to suppose that Chinese EFL learners' willingness to communicate in English might be low and that their language anxiety levels might be high, which may inhibit their L2 language performance.

Argumentative talk. An aspect of second language learning that is a major challenge to language learners is the understanding and use of argumentative talk. Pedagogically speaking, students need the opportunity not only to talk about the language that they are using, but also to try to articulate their thoughts with confidence when explaining their stance in "resolving

political, social, and professional controversies” (Reznitskaya et al., 2009, p. 44), which is vital “for active and mindful participation in a democratic society” (Reznitskaya et al., 2009, p. 31). In this study, Collaborative Reasoning, a program with a decades-long record of improving aspects of argumentation among elementary school students, was adapted for use with university students studying English as a foreign language, with the expectation that it would result in improvement in ability to argue, as well as general improvement in L2 oral and written production. Quality of students’ arguments was assessed in individual oral and written tasks.

The Current Study

To provide more insight into the theoretical, pedagogical, and methodological issues in how different foci of learner attention and peer interaction influence EFL learners’ L2 expressive language development and their affect and motivation to use English, this study directly compares two instructional environments, Collaborative Reasoning (meaning-focused instruction) and Dictogloss (form-focused instruction) and their outcomes.

Collaborative Reasoning (Collaborative Reasoning) is a discussion method developed by Professor Richard Anderson at the Center for the Study of Reading of the University of Illinois at Urbana-Champaign. Through small-group collaborative discussions of controversial topics, Collaborative Reasoning provides opportunities to exchange ideas and perspectives to boost learners’ oral language proficiency and critical thinking skills. Research has shown significant effects on several outcomes in American, Chinese, Korean, and Malaysian elementary schools (Dong, Anderson, Kim, & Li, 2008; Kim, Anderson, Miller, Jeong, & Swim, 2011; Reznitskaya et al., 2009). English language learners have shown improvement in oral fluency, listening and reading skills, and motivation for learning English after participating in Collaborative Reasoning

discussions (Hsu, Zhang, & Anderson, 2016; Ma'rof, A. M., 2014, Zhang, Anderson, & Nguyen-Jahiel, 2013).

Dictogloss is a second language learning activity developed by Professor Ruth Wajnryb (1990) of Anaheim University. Through collaborative small group reconstructions of texts that learners have heard, Dictogloss provides opportunities to improve learners' attention to language forms and sentence construction. Research has shown that second language learners not only focused on the grammatical aspects of language during Dictogloss sessions, they also negotiated spelling and word meaning (Kowal & Swain, 1994; Swain & Lapkin, 2001). This activity offers second language learners multiple opportunities for language expression (oral discussion, written composition, and meaning negotiation).

A pilot study run from April—May 2015 at a university in Taiwan confirmed that both Collaborative Reasoning and Dictogloss methods worked satisfactorily. Overall, students responded in feedback surveys that Collaborative Reasoning and Dictogloss were novel activities that encouraged them to be brave about communicating in English. Most of them said the interactive nature of the activities provided opportunities for them to learn about different perspectives on the same issues and different ways to present the same ideas.

The author is interested in what effects Collaborative Reasoning and Dictogloss would bring for students' general language production and attitudes when both conditions are designed with the same lesson format to provide similar opportunities for learner output and interaction. Outcome measures involved open-ended oral and written language production and self-reported attitudes of learners. Two general research questions were addressed: 1) Does the focus of task affect students' L2 spoken production?¹ 2) Does the focus of task affect students' attitudes toward L2 oral production?

CHAPTER 2

METHODOLOGY

Participants

Four college freshman English classes (N=136) at a leading university in Taiwan participated in this study. Two intact classes were randomly assigned to receive either Collaborative Reasoning (meaning-focused instruction) and two classes to receive Dictogloss (form-focused instruction). There were 66 students (male=41, female=24) in the Collaborative Reasoning condition and 70 students (male=34, female=32) in the Dictogloss condition. The mean age of participating students was 18.78 years old. The native language of the students was Chinese. Classes in both conditions were divided in groups of 5 through stratified random assignment according to scores from the General English Proficiency Test, which was administered in September or October the same year.

Initially, in addition to the four college freshman English classes in Taiwan, three college freshman English classes in China were recruited through the author's collaborator, a language instructor at a university in Shanghai. However, despite the collaborator's willingness to participate in the study, policy and enrollment changes at the university made it infeasible to collect data at the time. Language instructors in Taiwan did not agree with the initial research design of randomly assigning half of each class to either condition due to their concern about teaching ethics (e.g., splitting up the same class and doing different activities is unfair or would be perceived as unfair by the students). With these design limitations, study as conducted was unable to detect possible cohort or teacher effects. Regardless of the limitations, the sample size was still adequate.

Procedure

The duration of the project was eight weeks from November 2015 to January 2016. The intervention took place in one of the three weekly sessions each class had, and for the remaining two sessions regular English instruction was given. An introduction session, including a quick overview of modals and conditionals used to express hypothetical thinking and an ice-breaker that aimed to encourage students to self-express in English, was delivered to all classes prior to the intervention sessions. During the intervention, students in both conditions worked on the same 4 topics on controversial issues tailored to their interests, one topic per week, each topic for a 60-minute session instructed by the author. The language instructors did not participate in the sessions and sat at the back of the classroom and observed the activities. Students in the focus-on-meaning condition had small-group Collaborative Reasoning discussions. Students in the focus-on-form condition had small-group Dictogloss sessions. Activities of all the groups in both conditions were audio and video-recorded. Students completed short surveys at the end of each intervention session to provide feedback that the author addressed in a debriefing at the beginning of the next session.

Parallel individual language production tasks (a paired speaking task and a writing task), parallel independent proficiency tests (General English Proficiency Test), the same reading fluency test (with items randomized and presented in different order for the pre and posttest), a willingness to communicate and language anxiety survey, and a English speaking self-assessment survey were administered to both conditions before and after the intervention. In addition, a language experience survey was administered as a pretest. After the intervention, a post-intervention survey (Collaborative Reasoning/Dictogloss Evaluation) asked students about their impression of the program. All individual speaking task responses were audio-recorded.

Spoken and written production data were collected in a transfer design to see whether individual learners could utilize the interlanguage that was developed during the intervention in different contexts. Topics for speaking and writing pre and posttests were counter-balanced between pre and posttests to control for position effects and the main effect of topic interest, difficulty, and student background knowledge. With the speaking task designed to approximate a natural situation for spontaneous language use and the writing task designed to be open-ended so that there is not one best way to complete the task, this study hopes to provide a more comprehensive analysis of learner outcomes and address the issue that, in much of the previous research, assessments may not have reflected what learners have gained from output-based instruction because learners' responses were constrained by more limited tests.

Activities. Sessions in both conditions were designed to have a similar proportion of time spent listening, discussing, writing and reading. The 60-minute sessions that both conditions received composed of the following stages:

Debriefing from previous session (5—10min). In Session 2-4, a debriefing was held at the beginning of the session to provide feedback to students drawing from the *Feedback on Session* survey responses (please see below for more information) from students. For the Collaborative Reasoning condition, the feedback focused on group interactions, content of discussion, and English vocabulary that students had trouble expressing. For the Dictogloss condition, the feedback focused on group interactions, the language forms of expressing ideas, and English vocabulary that students had trouble expressing.

Read aloud and notes (5min). For both conditions, students heard a recording of a text (250-280 words) twice, first time to get the gist, second time to jot down keywords but not memorize the sentences heard.

Collaborative Reasoning discussion (15—20min). In the Collaborative Reasoning condition, the author announced the question for discussion and asked students to pick an initial stance toward the issue presented in the text and participate in their small group discussion. The goal of the discussion was to state and support opinions, challenge others' ideas, and persuade others with different opinions in order to decide what the best solution was to the question.

Collaborative Reasoning individual writing (15—20min). For the Collaborative Reasoning condition, the individual writing task for students was to respond to the question they have discussed about. Ideas not within the text were allowed. The text from the audio was provided to students in print 10 minutes after students have begun writing. Students in the Collaborative Reasoning condition could compare and contrast the similarities and difference in arguments between the text and what they wrote in order to improve the arguments in their texts. Thus, they may choose to add arguments that occurs to them after reading the text, further support an argument they have written, or add criticism to their argument.

Dictogloss discussion (25—30min). In the Dictogloss condition, the author asked students to reconstruct the text they have heard in their small groups, both discussing what to write and also each writing their own versions of the reconstructed text. The goal of the discussion was to reconstruct what was heard as much and as accurately as the students could.

Dictogloss individual writing. For the Dictogloss condition, the individual writing task was each student's reconstructed text from the Dictogloss discussion.

Text comparison (5—10 min). For the Dictogloss condition, the text from the audio was provided to students in print. Students in the Dictogloss condition were to compare and contrast the similarities and difference in form between how the text and how they presented the same information in order to improve the forms in their written products. Thus, they may choose to

correct errors that they saw, identify different grammar structures that introduced the same ideas as they did, or identify any new vocabulary.

Feedback on session (5min). Students completed a short survey at the end of each intervention session to provide feedback that the author addressed in a short debriefing at the beginning of the next session.

Materials. Below are the materials that were used in the current study.

Discussion texts (250–280 words). All texts were about controversial topics tailored to what typically would be of interest and concern to college students in Taiwan to encourage perspective exchanges for students in the Collaborative Reasoning condition. The texts were embedded with modals and conditionals in order to make it task-natural to talk about these structures as the Dictogloss students work on their text reconstruction. Below are the topics for discussion: 1) College major choosing: Jia-Yi's choice; 2) Technology in classrooms: Distractor or facilitator? 3) How to deal with rude customers? 4) What will your career be like ten years from now? (Please see Appendices A to D for details).

Speaking and writing pre and posttest texts (250–260 words). Two sets of topics were used for the speaking and writing pre and posttests. Each class was divided randomly into two halves, and half of the class responded to topic A for their pretest and topic B for their posttest, and the other half of the class responded to topic B for their pretest and topic A for their posttest. Topics for the speaking pre and posttests are: A) To Study Abroad or Not? B) Do Academic Qualifications Lead to Lifelong Success? (Please see Appendices E & F for details). Topics for the writing pre and posttests are: A) Should Students Wear Uniforms? B) Co-ed or Single-Gender School? (Please see Appendices G & H for details).

Both discussion texts and speaking and writing pre and posttest texts were drafted by the author and her collaborator, then reviewed by English native speakers to ensure grammar accuracy, native use of English, and natural flow. The final texts were read aloud by English native speakers and recorded with professional equipment for good sound quality.

Paired speaking pre and posttest. Participants completed this task in dyads to induce their interactive responses. Taking one dyad as an example, the procedure of the paired speaking task was administered as follows: Student 1 listened to an audio-recorded text on topic A twice on his/her computer, then audio recording began, and student 2 asked student 1 the prompting question about topic A and said something like “Explain your point of view on this question well and support your position with reasons”, then student 1 responded. Student 2 did not provide vocabulary or content or correction, but he /she provided social encouragement to encourage student 1 to do his/her best (e.g. nodding, saying “You can do it! Etc.”). When student 1 had nothing more to say, the audio recording ended, and student 1 and 2 switch roles. The procedures remained the same for student 2 except that it was on topic B (please see Appendix I for details).

Writing pre and posttests. Participants completed this task individually. They heard an audio-recorded text on their assigned topic that was played twice on their computers. After listening to the recorded text, they were to reconstruct the text by writing down the information they have heard as completely and as accurately as possible (please see Appendix J for details).

Independent proficiency test. The General English Proficiency Test (GEPT) is a normed assessment that is widely used in Taiwan for evaluating job applicants, employees, or students’ English proficiency. Respective versions of the listening and reading parts of the high-intermediate level test was administered by Freshman English instructors at the beginning and at the end of the semester as a routine of the course. Both listening and reading parts consist of 45

multiple-choice items, and takes about 85 minutes in total to complete (35 minutes for listening; 50 minutes for reading). The listening part assesses students' comprehension of English conversations in social settings and workplaces, lectures, news reports, and TV or radio programs. The reading part evaluates students' understanding of work-related documents and articles on concrete and abstract topics. The total score for both sections was 240 points ("High-Intermediate," n.d.).

Reading fluency test. Adapted from Miller et al. (2014), the reading fluency sentence verification test aims to measure students' general reading fluency. Participants were asked to decide if 110 sentences (55 true and 55 false sentences) were true or false, which was obvious from the content. If students read a sentence, there is a high chance that they respond correctly. Insufficient time (5 minutes) was intentionally given for participants so would be unable to finish marking all sentences while not causing discouragement. The number of syllables in the correct items completed in five minutes constitutes the reading fluency score (please see Appendix K).

Language experience survey. Adapted from Hsu, Zhang, & Anderson (2016), the survey asked for contextual information about participants' English language learning experience and language use habits (please see Appendix L for details).

Willingness to communicate (WTC) and language anxiety survey. Adapted from MacIntyre et al. (2001) and Peng (2007), the WTC survey has 26 Likert-scale items that asked students about their inclination to do speaking, writing, reading, and comprehension activities in English. Adapted from MacIntyre & Gardner's (1994) Input, Processing, and Output Anxiety index, the language anxiety survey has 17 Likert-scale items measuring student's degree of anxiousness when receiving input in English, organizing and processing English information, and using what was learned in English for production (please see Appendix M for details).

English speaking self-assessment. Adapted from Léger & Storch's (2009) Self Assessment Questionnaires, the English speaking self-assessment has Likert-scale items and short-answer questions that asked about students' perceptions of their oral proficiency and class participation (please see Appendix N for details).

Feedback on session survey and Collaborative Reasoning/Dictogloss evaluation. (Please see Appendices O to R for details). The feedback on session surveys were developed by the author to collect students' overall impressions of and questions from each of the program sessions. The Collaborative Reasoning/Dictogloss Evaluation had 20 Likert-scale items and four open-ended questions and was modified from what was usually used by the Collaborative Reasoning research team to evaluate students' motivation, engagement and perceptions about Collaborative Reasoning and classroom discussions. All surveys were translated into Mandarin Chinese.

Data Organization

Transcription and coding of performance on speaking task. For both conditions, the pre and post speaking production task was transcribed by two Chinese-English bilingual research assistants following conventions from the Systematic Analysis of Language Transcript (SALT) software that “manages the process of eliciting, transcribing, and analyzing language samples” (Miller & Chapman, 2010). Transcripts were segmented into Communication units, or C-units. A C-unit is either an independent clause, or an independent clause with its dependent clause(s), a rule-governed and consistent way to segment utterances (Loban, 1976). For example, “*When you are in a different country, there are language barriers and cultural barriers that makes your routine tasks very difficult*” is a C-unit consisting of one main clause (“*there are language barriers and cultural barriers*”) and two subordinate clauses (“*When you are in a different*

country”) and (“*that makes your routine tasks very difficult*”). Boundaries of clauses were denoted by []. Then, the transcripts were coded for bound morphemes (denoted with a slash; e.g., *work/ed*) omissions (marked with an asterisk) including omitted words (e.g. **for*) and omitted bound morphemes (e.g., *culture/*s*, *study/*N_ing*, *love/*3s*), pauses (denoted by a colon followed by the amount of time for within-utterance pauses; e.g., *:10* and between-utterance pauses were denoted by a semi-colon followed by a colon; e.g., *;;15* . Only pauses over three seconds were noted), errors (denoted by word-choice error code [EW:correct word]; e.g., *academy[EW:academic]*, *German[EW:Germany]* and bound morpheme error code [EM:bound morpheme category]; more descriptions of bound morpheme error codes can be found in Table 2), subordination index (mean clauses per C-unit), and mazes (in parentheses) including repetitions (e.g.,(*It's*) *It's...*), false starts (e.g., (*it's a it's a benefit UH*) *it's a bonus...*), and filled pauses (e.g., (*UH UH*)). Abandoned talk was denoted by the angle bracket >. Transcriber’s comments were braced by curly brackets. Twenty percent of the coded transcripts were reviewed by the author, and any mistakes found were corrected. Outcome measures such as number of C-units, total number of words, mean length of utterance, subordination index, total number of different words, type token ratio, number of abandoned utterances, omitted words, omitted bound morphemes, word-choice and bound morpheme errors, oral response time length, words per minute, between utterance pauses, within utterance pauses, and number of mazes were computed by SALT for the finalized transcripts.

Overall language fluency and language complexity. To capture a comprehensive view of students’ language production on the speaking task, fluency measures and syntactic complexity measures were combined with the three measures that represent verbal density, lexical complexity, and morphosyntactic and lexical accuracy in the Age-Sensitive Composite

Proficiency Score (ASCOPS). The fluency measures were words per minute and duration of pauses in minutes, and the syntactic complexity measures were mean length of utterance and subordination index. The ASCOPS measures were verbal density, defined as “number of finite and non-finite verbs divided by total number of [C]-units;” (Unsworth, 2008, p. 326), lexical complexity represented by Giraud’s index, “ $V/\sqrt{N}$, where V =type and N =token;” (Unsworth, 2008, p. 326), and rate of error-free utterances, defined as “number of error-free utterances divided by total number of [C]-units” (Unsworth, 2008, p. 326). In a principal component analysis of these measures, followed by a varimax rotation, two strong and readily interpretable components were obtained (See Table 1). The first principal component explained 44.21% of the variance in the pretest measures. The loadings on the first principal component of verbal density, subordination index, and MLU were .95, .91, and .90, respectively. The second principal component explained 28.25% of the variance in the pretest measures, and the loadings on the second principal component of word per minute, duration of pauses (inverted), and rate of error-free utterances were .80, .79, and .64, respectively. Giraud’s index was dropped as it did not load consistently with the other measures. Based on the loadings of measures on the two principal components, the first component represents overall language complexity and the second represents overall language fluency. Composite scores on the two principal components were computed to serve as summary measures of language proficiency on the pretest speaking task. Parallel composite scores were computed for the posttest measures by summing the products of the standardized posttest measures and corresponding pretest component loadings.

Table 1

Summary of Pretest Language Production Outcome Measures and Component Loadings for Varimax Orthogonal Solution (N = 130)

Measure	Component loading		Communality
	1	2	
Verbal density	.95	.07	.91
Subordination index	.91	.12	.84
Mean length of utterance	.90	-.09	.82
Words per minute	.10	.80	.65
Duration of pauses (inverted)	.22	.79	.67
Rate of error-free utterances	-.23	.64	.47

Modals and conditionals. Targeted modal verbs and conditionals (*if, can, can't, could, couldn't, will, won't, would, wouldn't, should, shouldn't, must, may, might*) were identified in the transcripts and coded as correct (no markup), incorrect ([*ME*]), and omitted ([*OMM*]) based on the context of spoken responses. For example, since the prompt of the speaking task is "If you were Jacob, what would you do?" students should use past tense for their responses. Thus, the following C-unit is coded as: S If I am[ET:WERE] Jacob, {clears throat} I think I will[*ME*][*OMM:WOULD*] try to get the balance of my study and (s*) activities ([ET:CORRECT TENSE FORM] is a code that indicated the tense error for verbs used in the conditional proposition). Two English-speaking research assistants completed the coding, and disagreements were discussed until consensus was reached.

Coordinating conjunctions. Coordinating conjunctions were coded as a low inference indicator of the connectedness of talk at the discourse level. Targeted coordinating conjunctions (*and, but, so, like, or, for example, however, then, and then*) were identified in the transcripts and coded as correct (no markup), incorrect ([*CE*]), omitted ([*OMC*]), and redundant ([*RC*]) based

on the context of spoken responses. For example, frequent incorrect coordinating conjunction patterns were:

Example 1

S *Although* it : sound/3s difficult, [] *but*[CE] she have : to spare no effort to (UH) try to conquer it [SI-2].

Example 2

S And *because* we will have to work with our partner/s (in) in the future in the company [] and *so*[CE] we should {chuckle} have great social skill/s [SI-2].

Example of redundant use of coordinating conjunction:

S So (UH) now if I were Jacob, [] I will (UH) : rethink about it [SI-2].

S *and*[RC] (UH what what i* UH) :03 what is (the thi* thi*) the thing [] I really want to [SI-2]?

Example of omitted coordinating conjunction:

S (Life is UH) : life is ambiguous [SI-1].

S and (you) you can try to research by yourself [SI-1].

S and [OMC:SO] academic qualification (does/n't : does is) is/n't very important in your life [SI-1].

Two English-speaking research assistants completed the coding, and disagreements were discussed until consensus was reached.

Accuracy. Word choice and bound morpheme errors (including incorrect use and omissions) were coded in the transcripts when identified. The bound morpheme coding scheme was adapted from SALT's transcription conventions, and the author added derivational bound morpheme categories to existing inflectional bound morpheme categories. The reason for the addition is because research has shown that one of the most challenging aspects of English for

Chinese-speaking English language learners is correct usage of word endings (Yang & Lyster, 2010;). Therefore, the author is interested in how well do students in this study master morphosyntactic relationships through choosing end morphemes to make the rights part of speech. The accuracy coding scheme is described in Table 2.

Table 2

Accuracy Coding Scheme

Type of error	Meaning	Examples
[EM: a]	Plural (/s)	I will try to apply for some <i>scholarship/*s[EM:a]</i> so I can study abroad
[EM: bs]	Bare singular	I will master new language[EM:bs] and I can have more opportunity/s to get a good job
[EM: b]	Possessive inflection (/z)	if I were in <i>Andrew/*z[EM:b]</i> situation
[EM: c]	Plural and possessive (s/z)	Not found in transcripts
[EM: d]	3 rd -person singular verb form (/3s)	the success that Emma <i>mean/*3s[EM:d]</i> is you study hard and get a good grade
[EM: e]	Verb inflection (/ing)	when you are not interest/A_ed in what you are <i>study/*ing[EM:e]</i> , you will/n't get good grades
[EM: f]	Past tense (/ed)	also we can <i>learn/ed[EM:f]</i> different languages and different culture/s
[EM: g]	Contraction (/’s, /n’t, etc.)	I think <i>it’s[EM:g]</i> depends on people
[EM: h]	Adjective (/A_suffix)	there are a lot of thing/s to <i>consider/A_ate[EM:h]</i>
[EM: i]	Nominal (/N_suffix)	So I think <i>go/*N_ing[EM:i]</i> abroad is a : good choice

Table 2 Continued

[EM: j]	Verbal (/V_ suffix)	I want to <i>broad</i> /*V_en[EM:j] my own horizons
[EM: k]	Adverbial (/ADV_ suffix)	It will be <i>easy</i> /ADV_ly[EM:k] to find a job in the future
[EM: l]	Comparative (/C_ suffix) & superlative (S_ suffix)	you can be <i>brave</i> /*C_er[EM:l]; superlative errors were not found in transcripts
[EIRP]	Irregular singular/ plural	we should/n't be a workaholic or just a <i>people</i> [EIRP:person] who (can) can study more
[EIRPS]	Irregular part of speech	academic success is the one way that most people will <i>success</i> [EIRPS:succeed] in their lives
[EIRT]	Irregular tense	I know it <i>took</i> [EIRT:TAKES] a lot of effort and money
[EW]	Incorrect word choice	An international company might hire someone who has overseas <i>experiments</i> [EW:experience]

Guidelines below were followed by two English-native-speaker research assistants to determine derivational suffixes: If 1) a basic word can easily be identified from the original word; 2) the meaning of the basic word is related to the original word in current English use (e.g. *opinionated* would go back to *opinion* instead of *opine*); 3) compared to the original word, the basic word does not have semantic change.

For words that were difficult to evaluate derivational suffixes, the spoken component from the Corpus of Contemporary American English (COCA) was used as reference. This part of

COCA consists of 109 million words from transcripts of unscripted conversation from over 150 different TV and radio programs. Frequency of both the original word and basic word were obtained from COCA and compared: if the basic word is more frequent, the derivational morpheme would be coded (e.g., *prior* is more frequent than *priority*, so *priority* was coded as *prior/N_ity*); if the original word is more frequent, then the word remains a whole (e.g. *definition* is more frequent than *define*, so no derivational morpheme was coded for this word).

Argument production. Two kinds of binary outcome measures were derived for argument production, with 1 indicating a feature's presence and 0 its absence. Each of the oral transcripts were first examined for the presence of spontaneous argument, spontaneous counterargument, and spontaneous rebuttal as an index of argumentation production (Reznitskaya & Anderson, 2002). An argument is a statement that supports a student's initial position on the question. A counterargument is a statement that opposes a student's initial position on the question (Dong, Anderson, Lin, & Wu, 2009). A rebuttal challenges the validity of the counterargument, which further supports the student's initial standpoint. Then, to find out about students' degree of elaboration in their talk, relevant C-units were counted (Reznitskaya, Kuo, Glina & Anderson, 2009), and the existence of different categories of C-units were identified from the transcripts as shown in Table 3. Two English-speaking research assistants completed the coding, and disagreements were discussed until consensus was reached.

Table 3

C-unit Categories for Argument Production

Type of C-unit	Meaning	Examples
[SAU]	Statement in abandoned utterance was coded when a C-unit was abandoned but an unfinished statement or idea was present.	S To break the culture barrier, (and I'm) I may look for part time job to learn some experience :03 to : (make) : make more [SAU]>
[IRR]	C-units that were not related to the topic were coded as irrelevant.	S (UH) thank you for your listening [IRR].
[REP]	Repetitive C-unit was coded when a student summarized what he/she had said by repeating the thesis or part(s) of the response.	<i>Student mentioned at the beginning of response:</i> If I were in Andrew/z situation, [] I would choose to study aboard. <i>And at the end of response:</i> So if I were in Andrew/z situation, [] I would still go abroad and study there [REP].
[MTC]	Meta-talk in Chinese was coded when students commented on what they said, their performance or the procedure of the speaking task in Chinese.	用 attention 很怪耶[MTC] <i>Translation: It's very weird to use "attention"</i>
[CS]	Code-switching was coded when students switched between English and Chinese for lexical items or short phrases (low in frequency).	...and I get a lot of (HM) ((成就感[CS])) <i>Translation: and I get a lot of (HM) sense of accomplishment</i>

Table 3 Continued

S 機會是人創造出來的[CS]
 {laughter}
*Translation: Opportunities
 are created by men*
 {laughter}

Note. Relevant C-units were not marked in the transcripts. [] denotes clause indication.

Attitude toward English language use. To answer, “Does the focus of task affect students’ attitudes toward L2 oral production?” students’ responses from pre and posttest language anxiety, English speaking self-assessment, and willingness to communicate surveys were analyzed. To obtain students’ general attitude toward English language use, their responses to the Likert-scale items were first summed respectively for each survey, with items inverted so that higher values on the scale represented a more positive attitude. Then, a principal component analysis was employed for the three sums. Factor loadings for the first (and only) principal component are presented in Table 4.

Table 4

Summary of Attitude Outcome Measures and Component Loadings for Varimax Orthogonal Solution

Measure	Pretest		Posttest	
	Factor loading		Factor loading	
	1	Communality	1	Communality
Language anxiety	.81	.66	.87	.76
English Speaking Self-assessment	.88	.77	.90	.82
Willingness to communicate	.79	.62	.82	.67

Statistical Analysis

The author independently coded twenty percent of the transcripts, and the coding reliabilities were satisfactory (Cohen's kappa=.82 for modals and conditionals, .85 for coordinating conjunctions, .83 for accuracy, and .87 for argument production). Three kinds of outcome variables were examined: language outcomes, argument production, and student attitudes. Dependent variables included the GEPT posttest scores, reading fluency test posttest scores, factor scores from language production measures and the ASCOPS proficiency score, counts of use and errors of modals and conditionals, coordinating conjunctions, bound morphemes, and word-choice, binary outcome measures for argument production, and the factor score for attitude surveys. Principle component analyses were chosen to obtain the factor scores for language production and attitude measures as it is an unbiased method of reducing data, capturing the variance of many variables in fewer, more stable components.

Two kinds of comparisons were made for the outcome variables. First, pre-post comparisons were made to see whether there was difference between pretest and posttest performance. Repeated measures general linear model was used for normally distributed measures, repeated Poisson regression model was used for count measures fitting a Poisson distribution, repeated logistic regression model was used for binary outcomes. The models included time (pretest or posttest) as the within-subject factor, condition (Collaborative Reasoning or Dictogloss) as the between-subject factor, and time-condition interaction was kept in the model when there was a significant effect. Next, between-condition comparisons were made to see if students performed differently after participating in discussions with different foci. A series of multiple regression analyses were conducted. Non-normally distributed count measures that fit a Poisson distribution were analyzed using Poisson regression analysis, and

binary outcomes were analyzed using logistic regression analysis. Models were run based on the principle of parsimony. The full model was run first with condition, gender, and topic (A or B) as fixed factors, and GEPT pretest scores, reading fluency pretest scores, and each measure's pretest scores as covariates in the model. Then, the insignificant covariate was dropped if this did not worsen the model fit drastically, and the reduced model was run and results from it reported. As a result of this policy, gender was not included in the final model. Topic was not included in the models for evaluating GEPT, reading fluency test, or attitudes as it was not relevant to these measures. Glass's delta was computed to calculate the effect size for data with normal and Poisson distributions. Odds ratio were calculated to evaluate the effect size of binary measures.

Among the 136 students who participated in the study, data from one student in the Collaborative Reasoning condition and four students from the Dictogloss condition were excluded from the analyses due to poor participation in class sessions. The student in the Collaborative Reasoning condition had consistently missed class sessions for the Freshman English course and eventually failed the course. The four Dictogloss students were reported by the teaching assistants of the classes to have had problematic attendance before the start of the intervention. Therefore, the analyses reported in this paper involved 131 students (65 students in the Collaborative Reasoning condition; 66 students in the Dictogloss condition). Make-up assessments for a few measures were not available for a few absent participants due to scheduling conflicts, resulting in a few missing cases, which are reflected in the tables for respective analyses.

Pearson correlation coefficients were calculated to determine the test-retest reliability between the pre and posttest measures for GEPT, reading fluency test, and speaking task language production composite scores. Correlation coefficients were also computed across these

measures to find out whether there is a strong relationship between the measures. Table 5 presents the correlations.

Table 5

Pearson Correlations of Pretests and Outcome Measures

	1	2	3	4	5	6	7	8
1. GEPT pretest	—							
2. GEPT posttest	.79**	—						
3. Reading fluency pretest	.33**	.42**	—					
4. Reading fluency posttest	.38**	.51**	.75**	—				
5. Pretest fluency	.29**	.30**	.16	.17	—			
6. Posttest fluency	.24**	.29**	.25**	.25**	.28**	—		
7. Pretest complexity	.24**	.22*	.20*	.29**	.00	.09	—	
8. Posttest complexity	.24**	.27**	.04	.14	.23*	.22*	.44**	—

Note. $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

From what is displayed in Table 5, the GEPT and reading fluency test seem to be reliable measures, having a strong correlation between the pre and posttest. The fluency and complexity measures from the speaking task are less stable as the pretest-posttest correlations are much lower. Cross-measure correlations are also lower, indicating that there is not a strong relationship between the GEPT, the reading fluency test, and the speaking task language production composite scores.

CHAPTER 3

RESULTS

General English Proficiency Test (GEPT)

A summary of the descriptive statistics for students' performance on GEPT is presented in Table 6. Initial GEPT scores of the Collaborative Reasoning and Dictogloss students were comparable ($\beta = -1.49$, $\chi^2 = .11$, $p = .75$). A significant improvement effect was found, as students scored higher in the posttest than in their pretest for GEPT ($F(1, 125) = 12.61$, $p = .00$, $\eta_p^2 = .09$). No significant difference between instructional conditions was found ($\beta = 2.63$, $\chi^2 = .81$, $p = .37$).

Table 6

Pretest Means, Adjusted Posttest Means, and SDs, and Linear Regression Results for General English Proficiency Test Performance

Variable	Collaborative Reasoning				Dictogloss				β	χ^2	p	Glas s's Δ
	Pretest		Posttest		Pretest		Posttest					
	(n=65)		(n=65)		(n=66)		(n=61)					
	M	SD	M	SD	M	SD	M	SD				
General	184.	28.	190.	28.	189.	23.	194.	26.	2.6	0.8	0.3	-0.15
English	51	99	31	69	63	92	21	30	3	1	7	
Proficiency Test performance												

Note. $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Reading Fluency Test

Table 7 displays the descriptive statistics for students' performance on the reading fluency test. Collaborative Reasoning students performed significantly better on the posttest

compared to Dictogloss students ($\beta = 51.03$, $\chi^2 = 17.76$, $p = .00$, Glass's $\Delta = .04$). Both the GEPT pretest scores ($\beta = .62$, $\chi^2 = 7.18$, $p = .01$) and the reading fluency test pretest scores ($\beta = .60$, $\chi^2 = 171.49$, $p = .00$) were significant predictors of the reading fluency posttest scores.

Students scored significantly higher in the reading fluency posttest compared to what they did in the pretest ($F(1, 126) = 114.39$, $p = .00$, $\eta_p^2 = .48$). A significant time-condition interaction was found ($F(1, 126) = 26.38$, $p = .00$, $\eta_p^2 = .17$). The interaction pattern is depicted in Figure 1. Compared to the Dictogloss students, there is steeper growth for Collaborative Reasoning students from the pretest to the posttest.

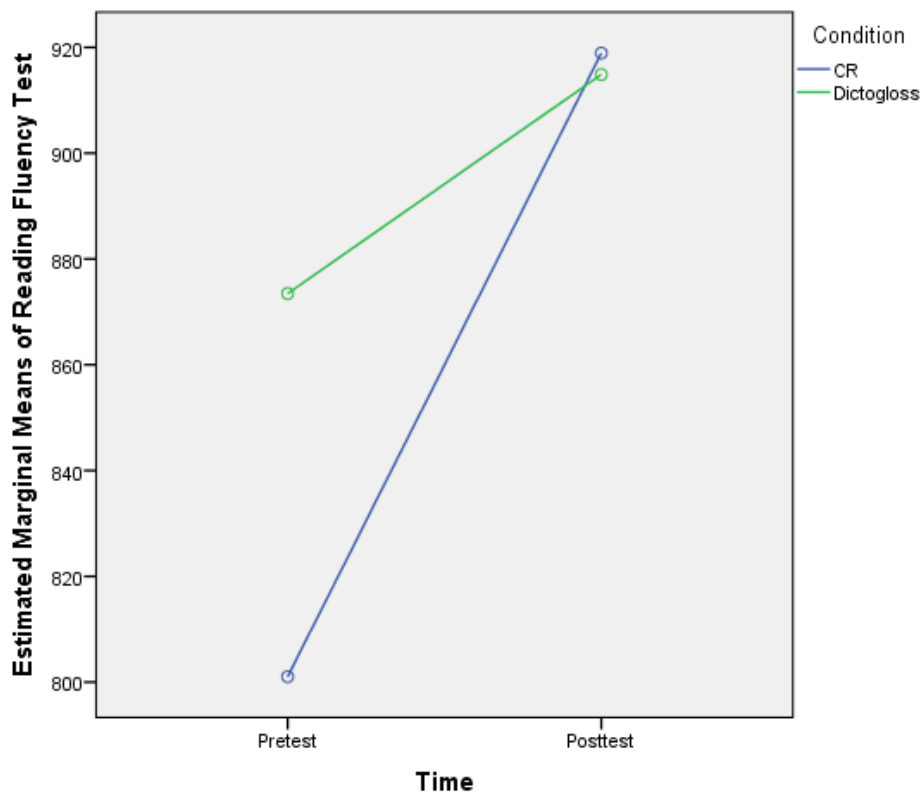


Figure 1. Time-condition interaction for reading fluency test

Table 7

Pretest Means, Adjusted Posttest Means, and SDs, and Linear Regression Results for Reading Fluency Test Performance

Variable	Collaborative Reasoning				Dictogloss				β	χ^2	p	Glas s's Δ
	Pretest		Posttest		Pretest		Posttest					
	(n=63)		(n=64)		(n=66)		(n=65)					
	M	SD	M	SD	M	SD	M	SD				
Reading Fluency Test performance***	801.03	137.15	918.83	108.13	872.50	133.05	914.86	111.50	51.03	17.76	0.00	0.04

Note. $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Language Production Complexity and Fluency

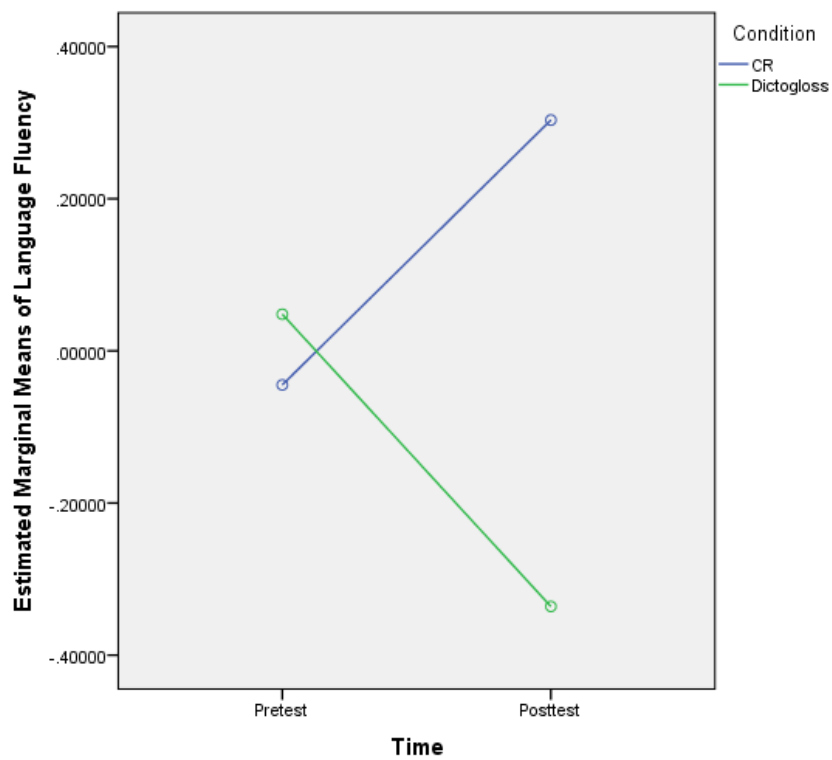


Figure 2. Time-condition interaction for fluency

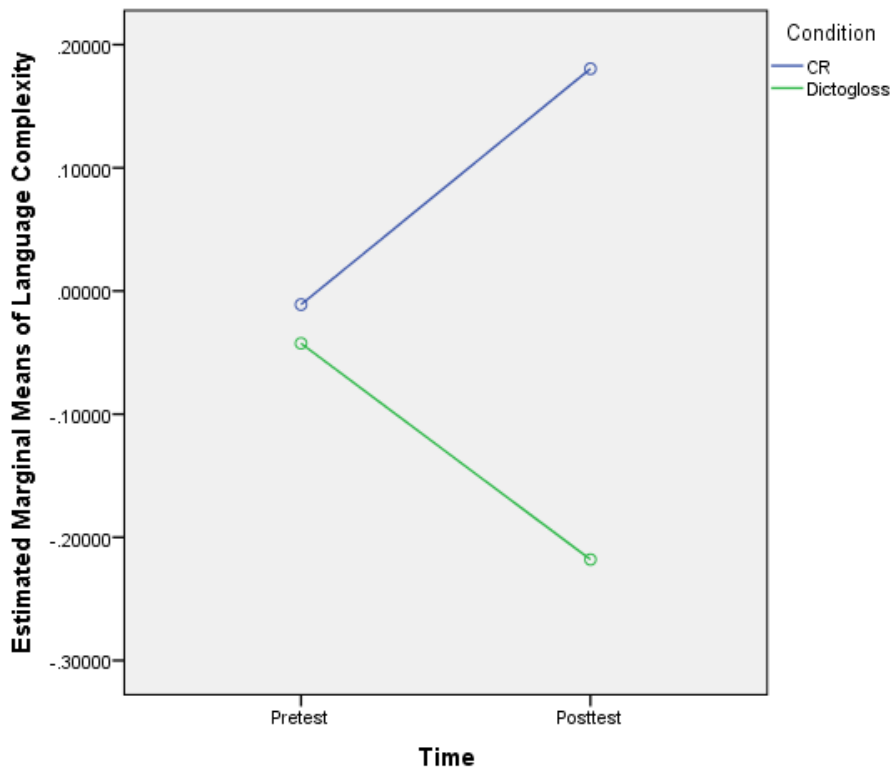


Figure 3. Time-condition interaction for complexity

To evaluate intervention effects on student's language production, a MANCOVA analysis was employed with the posttest language complexity and language fluency factors as dependent variables. Condition (Collaborative Reasoning or Dictogloss), gender, and topic (A or B) were fixed effects, and GEPT pretest scores, pretest language complexity and language fluency factors, reading fluency pretest scores, and the principal component score of attitude toward English language use (first principal component of item-sums of the language anxiety, English speaking self-assessment, and willingness to communicate pretest surveys) were entered in the model as covariates.

A significant overall condition effect on language production was found (Wilks' $\lambda = .94$, $F(2, 110) = 3.25$, $p = .04$, $\eta_p^2 = .06$). Both the pretest language fluency and pretest language

complexity were significant predictors (Wilks' $\lambda = .79$, $F(2, 110) = 14.81$, $p = .00$, $\eta_p^2 = .21$ for pretest language fluency; Wilks' $\lambda = .92$, $F(2, 110) = 4.84$, $p = .01$, $\eta_p^2 = .08$ for pretest language complexity). The reading fluency test significantly predicted posttest language production (Wilks' $\lambda = .94$, $F(2, 110) = 3.84$, $p = .03$, $\eta_p^2 = .07$). Pretest attitude toward English language use was also a significant predictor (Wilks' $\lambda = .91$, $F(2, 110) = 5.29$, $p = .01$, $\eta_p^2 = .09$). No significant effects were found for the other covariates. Nor were significant interactions found between instructional condition and GEPT pretest scores, condition and reading fluency, or condition and attitude toward English language use.

Follow up analyses including all of the covariates in the MANCOVA (for posttest complexity scores, pretest fluency scores was not included in the model; for posttest fluency scores, pretest complexity scores was not included) and using ordinary least square regression analysis indicated a significant difference between instructional conditions for language fluency ($\beta = .63$, $\chi^2 = 6.22$, $p = .01$, Glass's $\Delta = .34$) but not language complexity ($\beta = .65$, $\chi^2 = 1.83$, $p = .18$). Pretest fluency and complexity both significantly predicted posttest fluency and complexity ($\beta = .71$, $\chi^2 = 30.28$, $p = .00$, Glass's $\Delta = .34$; $\beta = .63$, $\chi^2 = 6.22$, $p = .01$, Glass's $\Delta = .25$). Attitude toward English language use was a significant predictor of language fluency ($\beta = .41$, $\chi^2 = 10.59$, $p = .00$, Glass's $\Delta = .34$), and reading fluency pretest was a significant predictor for language complexity ($\beta = .00$, $\chi^2 = 4.82$, $p = .03$, Glass's $\Delta = .25$). No significant interaction between condition and attitude or condition and reading fluency was present.

Although the main effect of time was not significant, a significant time-condition interaction was found for fluency ($F(1, 124) = 8.06$, $p = .01$, $\eta_p^2 = .06$), and a similar trend was observed for complexity. Figure 2 and 3 both show that when examining performance by students in the two instructional conditions separately, there was an increase for Collaborative

Reasoning students in fluency and complexity, whereas Dictogloss students displayed a decrease in the two factors.

Table 8

Pretest Means, Adjusted Posttest Means, and SDs, and Linear Regression Results for Language Production Factors

Variable	Collaborative Reasoning				Dictogloss				β	χ^2	p	Glass's Δ
	Pretest		Posttest		Pretest		Posttest					
	(n=65)		(n=65)		(n=65)		(n=62)					
	M	SD	M	SD	M	SD	M	SD				
Language fluency*	-	1.1	0.3	1.3	0.0	0.8	-	1.8	0.6	6.2	0.0	0.34
	0.0	2	0	7	4	7	0.3	0	3	2	1	
	4						2					
Language complexity	-	0.9	0.1	2.7	0.0	1.0	-	2.7	0.6	1.8	0.1	0.25
	0.0	2	8	2	1	8	0.1	0	5	3	8	
y	1						9					

Note. $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Consistent results were obtained from an alternative MANCOVA with fourteen posttest language production outcome measures as dependent variables, condition (Collaborative Reasoning or Dictogloss), gender, and topic (A or B) as fixed effects, and GEPT pretest scores, principal component scores of pretest language production measures, reading fluency pretest scores, and the principal component score of pretest attitude toward English language use in the model as covariates (Wilks' $\lambda = .68$, $F(14, 98) = 3.26$, $p = .00$, $\eta_p^2 = .32$). The pre and posttest language production measures were number of C-units, number of complete words, mean length of utterance, number of different words, type-token ratio, total number of mazes, number of abandoned utterances, words per minute, number of pauses within C-units, number of pauses

between C-units, pause time within C-units in minutes, pause time between C-units in minutes, duration of response in minutes, and subordination index.

Modals and Conditionals

Descriptive statistics of students' production of modals and conditionals are shown in Table 9. Although modal verbs and conditionals were very infrequent in students' oral responses, the zero inflated Poisson regression model was not suitable as it would analyze the zero counts separate from the above-zero counts. Thus, Poisson regression was employed for the analyses of modal and conditional attempts (including correct and incorrect use), correct use, incorrect use, and omissions. Since there was no difference between instructional conditions in total number of words produced in the posttest response ($\beta = 9.92, \chi^2 = 1.24, p = .27$), this covariate was not entered in the model to avoid an excessive number of covariates. No difference between instructional conditions was found for students' attempts ($\beta = .13, \chi^2 = 3.07, p = .08$) or correct use of modals and conditionals ($\beta = .08, \chi^2 = 1.07, p = .30$). Compared to Dictogloss students, Collaborative Reasoning students had more incorrect use and omission of modals and conditionals in their posttest response ($\beta = .48, \chi^2 = 8.38, p = .00$, Glass's $\Delta = .32$).

Students made more attempts ($\beta = .16, \chi^2 = 7.84, p = .01$, Glass's $\Delta = 0.32$) and used more correct modals and conditionals in the posttest than in the pretest ($\beta = .18, \chi^2 = 8.54, p = .00$, Glass's $\Delta = 0.33$). They had significantly more modal and conditional errors (including incorrect use and omission) in the posttest ($\beta = -.38, \chi^2 = 3.93, p = .05$, Glass's $\Delta = -0.01$). Results also show a significant time and condition interaction ($\beta = .75, \chi^2 = 8.76, p = .00$, Glass's $\Delta = -0.01$) for modal and conditional errors. Figure 4 illustrates Dictogloss students' decrease of modal errors in the posttest, while Collaborative Reasoning students had increased their use of incorrect modal use in the posttest.

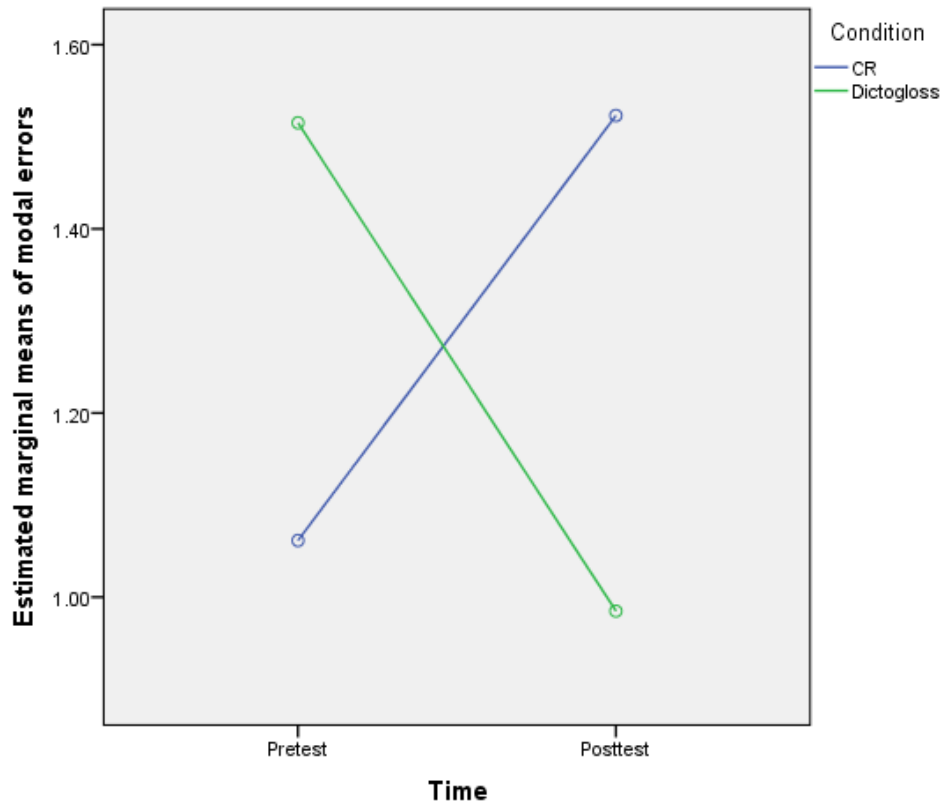


Figure 4. Time-condition interaction for modal and conditional error production

Table 9

Pretest Means, Adjusted Posttest Means, and SDs, and Poisson Regression Results for Modal and Conditional Production

Variable	Collaborative Reasoning				Dictogloss				β	χ^2	p	Glass's Δ
	Pretest		Posttest		Pretest		Posttest					
	(n=65)		(n=65)		(n=65)		(n=62)					
	M	SD	M	SD	M	SD	M	SD				
Attempt	5.49	2.54	6.51	3.39	4.86	2.93	5.60	3.19	0.13	3.07	0.08	0.29
Correct	5.00	2.56	5.82	3.34	4.12	2.95	5.15	3.10	0.08	1.07	0.30	0.22

Table 9 Continued

Error***	1.06	1.33	1.52	1.45	1.54	1.36	1.05	1.45	0.48	8.38	0.00	0.32
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Note. $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Coordinating Conjunctions

Descriptive statistics of students' production of coordinating conjunctions is summarized in Table 10. Poisson regression was employed for the analyses of coordinating conjunction attempts (including correct, incorrect, and redundant use), correct use, error (including incorrect use and omissions), and redundant use. Since there was no difference between instructional conditions for total number of words produced in posttest response ($\beta = 9.92$, $\chi^2 = 1.24$, $p = .27$), this covariate was not entered in the model to avoid an excessive number of covariates. Collaborative Reasoning students made more attempts to use coordinating conjunctions ($\beta = .19$, $\chi^2 = 5.71$, $p = .02$, Glass's $\Delta = .53$) and had more incorrect use and omission of coordinating conjunctions ($\beta = .69$, $\chi^2 = 4.36$, $p = .04$, Glass's $\Delta = .32$), as well as redundant use ($\beta = .65$, $\chi^2 = 12.14$, $p = .00$, Glass's $\Delta = .43$) than Dictogloss students did in their posttest responses. No difference between instructional conditions was found for correct use of coordinating conjunctions ($\beta = .08$, $\chi^2 = .81$, $p = .37$).

Students in both conditions made more attempts to use coordinating conjunctions (including correct and incorrect use) in the posttest than in the pretest ($\beta = .14$, $\chi^2 = 6.57$, $p = .01$, Glass's $\Delta = .25$). More correct use of coordinating conjunctions was found in students' posttest talk ($\beta = .18$, $\chi^2 = 7.56$, $p = .01$, Glass's $\Delta = .28$). No significant time difference was found for

coordinating conjunction errors ($\beta = -.16$, $\chi^2 = .54$, $p = .47$) or redundant coordinating conjunctions ($\beta = -.11$, $\chi^2 = .59$, $p = .44$).

Table 10

Pretest Means, Adjusted Posttest Means, and SDs, and Poisson Regression Results for Coordinating Conjunction Production

Variable	Collaborative Reasoning				Dictogloss				β	χ^2	p	Glass's Δ
	Pretest		Posttest		Pretest		Posttest					
	(n=65)		(n=65)		(n=65)		(n=62)					
	M	SD	M	SD	M	SD	M	SD				
Attempt*	5.3	3.0	6.3	3.5	4.2	2.8	4.7	2.9	0.1	5.71	0.0	0.53
	7	6	4	9	9	7	9	2	9		2	
Correct	4.0	2.5	4.5	2.6	3.0	2.2	3.7	2.2	0.0	0.81	0.3	0.36
	0	4	8	0	0	8	7	8	8		7	
Error*	0.3	0.7	0.4	0.7	0.4	0.6	0.2	0.6	0.6	4.36	0.0	0.32
	8	6	5	5	5	4	6	0	9		4	
Redundant*	1.0	1.2	1.3	1.4	0.8	1.0	0.7	1.3	0.6	12.1	0.0	0.43
**	8	9	7	0	5	6	7	8	5	4	0	

Note. $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Accuracy

Table 11 summarizes the descriptive statistics and results of Poisson regression analyses for five accuracy measures from students' talk: bound morphemes, bound morpheme errors, omitted bound morphemes, word-choice errors, and omitted words. Low frequency codes were not included in the analyses (e.g., codes for errors that had frequency of less than 5 counts in either condition) such as irregular singular/ plural forms, irregular part of speech, and irregular tense errors. Since there was no difference between instructional conditions for total number of

words produced in posttest response ($\beta = 9.92, \chi^2 = 1.24, p = .27$), this covariate was not entered in the model to avoid an excessive number of covariates.

There was no difference between instructional conditions for bound morpheme production ($\beta = .06, \chi^2 = 1.12, p = .29$). Dictogloss students had more bound morpheme errors ($\beta = -.17, \chi^2 = 4.44, p = .04$, Glass's $\Delta = -0.13$), omitted more bound morphemes ($\beta = -.20, \chi^2 = 4.29, p = .04$, Glass's $\Delta = -0.10$), and had more word-choice errors ($\beta = -.37, \chi^2 = 4.93, p = .03$, Glass's $\Delta = -.30$) than Collaborative Reasoning students in the posttest. No difference between instructional conditions was found for omitted words ($\beta = .12, \chi^2 = .12, p = .73$).

Students in both conditions produced significantly more bound morphemes ($\beta = .20, \chi^2 = 10.17, p = .00$, Glass's $\Delta = .31$), bound morpheme errors (adding error category a to l together), ($\beta = .17, \chi^2 = 7.26, p = .01$, Glass's $\Delta = .26$) and omitted significantly more bound morphemes in the posttest ($\beta = .19, \chi^2 = 6.67, p = .01$, Glass's $\Delta = .27$) than in the pretest. The number of word-choice errors did not differ significantly between the pre and posttests ($\beta = .11, \chi^2 = .51, p = .47$). Nor was significant difference found between pretest and posttests for omitted words in students' talk ($\beta = -.16, \chi^2 = .40, p = .53$).

Table 11

Pretest Means, Adjusted Posttest Means, SDs, and Poisson Regression Results for Accuracy

Factors

Variable	Collaborative Reasoning				Dictogloss				β	χ^2	p	Glass's Δ
	Pretest		Posttest		Pretest		Posttest					
	(n=65)		(n=65)		(n=65)		(n=62)					
	M	SD	M	SD	M	SD	M	SD				

Table 11 Continued

Bound morphemes	10.28	7.74	12.51	9.23	9.05	5.95	11.19	6.70	0.06	1.12	0.29	0.20
Bound morpheme errors*	4.48	3.15	4.80	2.61	4.03	2.68	5.26	3.65	-0.17	4.44	0.04	-0.13
Omitted bound morphemes*	3.32	2.44	3.51	2.20	2.71	2.20	3.82	2.98	-0.20	4.29	0.04	-0.10
Word-choice errors*	1.18	1.55	0.97	1.40	1.00	1.39	1.48	1.73	-0.37	4.93	0.03	-0.30
Omitted words	0.38	0.68	0.37	0.68	0.35	0.67	0.26	0.60	0.12	0.12	0.73	0.18

Note. $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Argument Production

Table 12 and 13 displays respectively the descriptive statistics for students' relevant C-unit production and percent of students with different argument elements, C-unit types, and results of logistic regression analyses comparing Collaborative Reasoning and Dictogloss students. Compared to Dictogloss students, Collaborative Reasoning students had significantly more utterances related to the topic ($\beta = 0.13$, $\chi^2 = 4.20$, $p = .04$, Glass's $\Delta = .39$). Collaborative Reasoning students had a lower tendency to repeat ($\beta = -1.75$, $\chi^2 = 6.68$, $p = .01$, odds ratio = 0.17) and produce irrelevant C-units ($\beta = -2.46$, $\chi^2 = 4.60$, $p = .03$, odds ratio = .09) than Dictogloss students. No difference between instructional conditions was found for argument,

counterargument, rebuttal, meta-talk in Chinese, statements in abandoned utterances, or code-switching between English and Chinese.

Students were more likely to produce rebuttals ($\beta = -1.09$, $\chi^2 = 6.50$, $p = .01$, odds ratio = .34) and repetitions ($\beta = -2.06$, $\chi^2 = 8.84$, $p = .00$, odds ratio = .13), had more relevant C-units ($\beta = .12$, $\chi^2 = 5.83$, $p = .02$, Glass's $\Delta = .24$) and tended to have less meta-talk in Chinese ($\beta = 0.58$, $\chi^2 = 3.88$, $p = .05$, odds ratio = 1.79) in the posttest than the pretest. No significant time effects were found for other binary measures such as arguments, counterarguments, irrelevant C-units, statement in abandoned utterances, or code-switching between English and Chinese.

Significant time-condition interactions were found for the tendency to produce rebuttals ($\beta = 1.38$, $\chi^2 = 5.33$, $p = .02$, odds ratio = 3.99) and repetition ($\beta = 3.12$, $\chi^2 = 9.67$, $p = .00$, odds ratio = 22.65). Contrary to expectation it was Dictogloss students who showed increase use of rebuttals on the posttest speaking task.

Table 12

Pretest Means, Adjusted Posttest Means, SDs, and Poisson Regression Result for Relevant C-units

Variabl e	Collaborative Reasoning				Dictogloss				β	χ^2	p	Glass' s Δ
	Pretest		Posttest		Pretest		Posttest					
	(n=65)		(n=65)		(n=65)		(n=62)					
	M	SD	M	SD	M	SD	M	SD				
Relevant C-units*	7.9	4.1	9.0	4.0	6.8	3.4	7.5	3.7	0.1	4.2	0.0	0.39
	2	5	2	7	0	4	5	6	3	0	4	

Note. $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Table 13

Percent of Students with Argument Elements

Variable	Collaborative Reasoning		Dictogloss		β	χ^2	p	Odds ratio
	Pretest	Posttest	Pretest	Posttest				
	(n=65) %	(n=65) %	(n=65) %	(n=62) %				
Argument	98.5	98.5	96.9	96.8	1.43	1.08	0.30	4.20
Counterargument	75.4	78.5	72.3	87.1	-0.48	0.86	0.35	0.62
Rebuttal	73.8	67.7	58.5	80.6	-0.83	2.86	0.09	0.44
Meta-talk in Chinese	21.5	18.5	21.5	7.8	1.12	3.30	0.07	3.05
Repetition*	12.3	4.6	4.6	26.6	-1.75	6.68	0.01	0.17
Statement in abandoned utterance	27.7	32.3	20.0	18.8	0.63	2.00	0.16	1.87
Irrelevant C-unit*	3.1	1.5	13.8	14.1	-2.46	4.60	0.03	0.09
Code-switch between English and Chinese	7.7	9.2	1.5	3.1	0.93	1.09	0.30	2.53

Note. $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Attitude toward English Language Use

Descriptive statistics for the attitude component score are reported in Table 14. The posttest factor from the principal component analysis of the three attitude survey item sums was the dependent variable in an ordinary least square regression analysis. Condition (Collaborative Reasoning or Dictogloss), gender, and topic (A or B) were fixed effects, and GEPT pretest scores, reading fluency pretest scores, and the pretest factor from the principal component analysis of the pretest attitude survey were entered in the model as covariates. Results showed

that there is no difference between instructional conditions ($\beta = .01$, $\chi^2 = .01$, $p = .91$) and no time effect was found ($F(1, 120) = .44$, $p = .51$). This indicates that the intervention did not have an overall effect on students' attitudes toward English use.

Table 14

Pretest Means, Adjusted Posttest Means, and SDs, and Linear Regression Results for Attitude Factor

Variable	Collaborative Reasoning				Dictogloss				β	χ^2	p	Glass's Δ
	Pretest		Posttest		Pretest		Posttest					
	(n=63)		(n=60)		(n=64)		(n=63)					
	M	SD	M	SD	M	SD	M	SD				
Attitude factor	0.01	0.99	-0.02	1.08	-0.02	1.02	0.02	0.93	0.01	0.01	0.91	-0.04

Note. $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Attitude toward Discussions

Students' responses to the twenty 5-point Likert-scale items were added together, with negative items inverted so that higher value on the scale represented a more positive attitude. Descriptive statistics for this summed score are reported in Table 15. An ordinary least square regression analysis was run with the summed score as the dependent variable. Condition (Collaborative Reasoning or Dictogloss) and gender were fixed effects, and GEPT pretest scores and reading fluency pretest scores were entered in the model as covariates. The result shows that Collaborative Reasoning students had a significantly more positive attitude toward Collaborative Reasoning discussions compared to Dictogloss students toward Dictogloss discussions ($\beta = 7.26$, $\chi^2 = 19.43$, $p = .00$, Glass's $\Delta = .71$).

Table 15

Means and SDs, and Linear Regression Result for Attitude toward Discussions

Variable	Collaborative Reasoning		Dictogloss		β	χ^2	p	Glass's Δ
	M	SD	M	SD				
Attitude toward discussions***	74.52	8.63	67.83	9.47	7.26	19.43	0.00	0.71

Note. $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Students' answers for the open-ended questions were also examined. For "*What I like about Collaborative Reasoning/Dictogloss discussions is(are)...*", many students from both conditions expressed that they liked how the discussions allowed interaction between peers and practice of speaking English, that discussions were interesting, more free and less stressful so they were more willing to express themselves and interact with their classmates. Collaborative Reasoning students mentioned that they liked that they could talk in English and were able to spontaneously express their ideas and listen to other student's thoughts and perspectives. Dictogloss students reported that they liked the teamwork and collaboration when reconstructing the text.

For "*What I don't like about Collaborative Reasoning/Dictogloss discussions is (are)...*", many Collaborative Reasoning and Dictogloss students indicated that they felt nervous about speaking English, that there was not enough time for the discussions, and that they were not sure if they have improved their English from the discussions because they were using only what they knew. Some Collaborative Reasoning students wrote that they often didn't know what to say. This situation may occur when everyone in the group leaned toward one perspective on the topic or when some group members did not talk. Some students pointed out that the topics were often only two-sided, so it wasn't very interesting to discuss these topics. Some Dictogloss students

described group members who were not cooperative, stated that the discussions were monotonous, and that reconstructing the text was a difficult activity because they couldn't make notes of or memorize everything when listening to the audio recording of the text.

In terms of classroom discussions in prior English classes, most students reported that they rarely or never had English discussions in class, and that they mostly listened as the instructor taught. Therefore, most of the answers were based on lecture experience. For “*What I like about prior English class discussions is (are)...*” many students mentioned that there was more structure and guidance in the classes, and that they felt they received more input and learned more. They also thought lecturing was a more efficient way to learn and train in vocabulary, reading, and writing. Class experience was less stressful and easier compared to Collaborative Reasoning or Dictogloss because they were not required to talk and did not need to think as much. Students could choose when and where to allocate their attention.

For “*What I don't like about prior English class discussions is (are)...*”, many students expressed that they thought classes were routine and boring, and they got distracted and sleepy easily. Few opportunities were given to speak English or express one's opinions in class, and there was little interaction nor boost of thinking. If there were discussions, they usually spoke Chinese and had little motivation to discuss. Nevertheless, a few students mentioned that they did like the lecture way of English class.

Speaking Task Response Examples

Two speaking task posttest responses representing the typical performance of Collaborative Reasoning students and Dictogloss students are presented in this section. These two students had the same pre-intervention General English Proficiency Test score (184 out of 240 points). As described in the sections before, gender and topic did not significantly affect the

outcomes. The Collaborative Reasoning student was male, and his response to Topic B, *Do Academic Qualifications Lead to Lifelong Success?* was 1 minute and 39 seconds. The Dictogloss student was female, and her response to Topic A, *To Study Abroad or Not?* was 1 minute and a second. Most of the difference between instructional conditions described in the sections above can be found in these transcripts.

S stands for student. Student's responses were segmented into C-units. Mazes were captured in parentheses and were excluded from analyses. Within C-unit pauses were indicated by colons. If a pause was more than 3 seconds, the length of the pause was denoted following the colon. Omissions were marked with asterisks. Abandoned talk was denoted by the angle bracket >. Transcriber's comments were braced by curly brackets. Descriptions of codes for modals and conditionals, coordinating conjunctions, and accuracy can be found in Chapter 2 and Table 2. For ease of reading, codes for argument production are not indicated in the transcripts.

Collaborative Reasoning student.

S (UH) If I were Jacob (UH) [] I think [] I will[ME][OMM:WOULD]
find the balance between the schoolwork and extracurricular
thing/s [] because (UH) Emma is right [] that the (academic qua*
UM) academic qualification is real/ADV_ly important [SI-5].

S However, (it/'s not all) : it/'s not all in life [SI-1].

;;

S (UM :04 It said) She said [] that : *for the person [] who had
good grade/s [] (it) it mean/*3s[EM:d] [] that they have the
great/C_er self discipline [SI-4].

S but I do/n't agree with her because (maybe maybe somebody)
maybe someone [SI-X]>

S (UM : UM the grade/s the grade/s that) the grade only
show/3s : the thing [] that/'s on the surface [SI-2].

S but when you are not interest/A_ed in [] what you are
study/*ing[EM:e], [] you will/n't get good grade[EM:bs] [SI-3].

S (But) However, (when you are in when you are UM when you are
in a s* when you are) when you are work/ing, [] (UH) your boss
(or) : or other people (MHM : look) look at your ability but not
only the (certif*) certification [SI-2].

S (so : sometimes so some) so I think [] try to find the balance
is the most important thing/s[EM:a] : yeah [SI-2].

The Collaborative Reasoning student's fluency score was 1.61, and his complexity score was 0.91. Two modal attempts were made, one resulting in an error. Eight coordinating conjunctions were used. Four bound-morpheme errors were found. There were no word-choice errors. All seven C-units produced were relevant to the topic.

Dictogloss student.

S (UH) If I was in Andrew/z situation, I think I may, first try
to study abroad for one year, then think/ing[EM:e] that if it/'s
right for [SI-X]>

S Is it (UH) {laughter} right for me to do that [SI-1].

S (UH) {inhales} (li*) also, he said [] we (cou*) need to (work)
work (as far) as quick[EW:soon] as [] we graduate from school
[SI-3].

S I think [] (UH) it might be a good choice for Andrew or me to first study abroad for[EW:to] learn/ing[EM:e] a new language or understand/ing[EM:e] (UH) other foreigner/z experience and their view of point/*s[EM:a] [SI-2].

S It will [SI-X]>

S (UH) for Andrew (he is he want/*3s[EM:d] to) he want/*3s[EM:d] to : have a work[EW:job] in the some international : company [SI-1].

S so I think that [] language and other/z (viewpoint) view of point/*s[EM:a] is very important for his job, yeah [SI-2].

S Ok [SI-0].

The Dictogloss student's fluency score was -2.22, and her complexity score was 0.81. One modal and two coordinating conjunction attempts were made. Six bound-morpheme and three word-choice errors were found. Five out of six C-units produced were relevant to the topic.

Comparing the two transcripts, the Collaborative Reasoning student had higher fluency and complexity scores, more coordinating conjunction attempts and modal errors. The Dictogloss student misused more bound morphemes, made more wrong word choices, and had fewer C-units related to the topic, which resonates with the quantitative results.

CHAPTER 4

DISCUSSION AND CONCLUSION

This study provides empirical data for evaluating learner outcomes in oral language and attitudes toward English use after participation in two types of peer discussions, Collaborative Reasoning and Dictogloss. Study results demonstrated that EFL learners' language production is affected by the kind of small-group discussion they had. Learners who had meaning-focused Collaborative Reasoning discussions increased their fluency in spontaneous talk in the posttest, while learners who participated in form-focused Dictogloss discussions had reduced fluency after controlling for pretest fluency and other language proficiency measures for both conditions (as shown in Figure 2). This outcome is consistent with the author's predictions and previous research (Zhang, Anderson, & Nguyen-Jahiel, 2013).

A related finding comes from the reading fluency test, which assesses how well students are able to automatically call up linguistic information, such as lexical meaning and syntax, and integrate this information as they decide whether a sentence is true or false. Although Collaborative Reasoning students had lower baseline reading fluency scores than Dictogloss students did, they improved significantly more and had higher reading fluency scores than the Dictogloss students in the posttest (as displayed in Figure 1). Both the speaking fluency and reading fluency results suggest that Collaborative Reasoning students may have automatized linguistic processing more than Dictogloss students. An important role of extended talk during second language learning is it facilitates the transition of already-stored L2 knowledge representations from declarative knowledge to procedural knowledge (de Bot 1992, 1996). With repeated experience, language performance becomes automated, which is reflected in fluency.

Students in the meaning-focused Collaborative Reasoning condition may have activated more of their linguistic knowledge for the more natural and spontaneous language used for expressing their ideas. More verbal and non-verbal strategies (Canale, 1983) might have been adopted to compensate for communication breakdowns to enhance the effectiveness of communication. Dictogloss students in the form-focused instructional condition may have fallen short in fluency because the communicative flow had to be interrupted to focus on form, due to students' self-monitoring and understanding that the instructor was more concerned about form than meaning (Ellis et al., 2002, pp. 430-431) because the goal of their group discussions was to reconstruct the text that they had heard as accurately and as completely as possible. Although not statistically significant, a similar trend to fluency was found for language complexity, which also corresponds with the author's predictions.

To support their positions with reasons, Collaborative Reasoning students produced more extended utterances than Dictogloss students. Dictogloss had to focus on recalling information and correcting what might have been wrong in content and grammar; thus, students in this condition did not get as much practice connecting thoughts that they would like to express in English in a variety of ways because they were restricted to the text.

The process of speech production is captured in Levelt's (1989) model, which was originally developed for adult L1 speech production but is still rather insightful for L2 production. The speaker generates a concept, which then is encoded in a speech form that is later communicated. Looking at the model in coarser grain, there are three major stages: Conceptualization (where the concept to be conveyed is generated), Lemma Retrieval in Formulation (where semantic and syntactic information of lexical items are retrieved), and Syntactic Encoding in Formulation (where lemmas are strung together to become the basic

structure of the message). Skehan (2009) proposed that a need to formulate more complex ideas would affect the Conceptualizer stage and could lead to an increase in structural complexity of the target language (p.520). Through the collaborative experience of managing the complexity of communication together with group members in the Collaborative Reasoning condition, students might have been able to develop more awareness of complex grammar structures, which are difficult to understand through formal instruction (Ellis, 2003; Loschky & Bley-Vroman, 1993; Robinson, 1996). This could also be reflected in Collaborative Reasoning students' coordinating conjunction production. From the time of the pretest to the posttest, students from both conditions used more and had more correct coordinating conjunctions in their talk, indicating that discussions may have facilitated students' expression of complex ideas in English. While having the same number of correct coordinating conjunctions in their talk as Dictogloss students did, Collaborative Reasoning students also had more attempts, errors, and redundant coordinating conjunction use. It seems like Collaborative Reasoning students were making more attempts to capture the relationships between complicated ideas. However, the influence of increased interaction on syntactic improvement has been shown to be delayed in some previous studies (Mackey & Goo, 2007). This could explain why the trend for complexity scores from pre-to-posttest was noticeable but not statistically significant. There is a possibility that with a longer intervention, the effects on complexity might become more prominent.

This study also examined three aspects of language accuracy: modal and conditional production, bound morpheme production, and word choice. Both groups of students produced more modals and conditionals and used more correct modals and conditionals in their posttest talk than in their pretest talk. Collaborative Reasoning and Dictogloss students produced the same number of correct modals and conditionals, but Dictogloss students had fewer modal and

conditional errors compared to Collaborative Reasoning students in the posttest. To be more specific, Dictogloss students started with more incorrect use of modals and conditionals than Collaborative Reasoning students, but their number of errors dropped, while Collaborative Reasoning students' incorrect use grew. These results echoed the author's predictions. Unlike English grammar, which distinguishes among different types of conditionals with various auxiliary verbs (including modal verbs), tenses, and aspect markers, Chinese does not have such grammatical distinctions or morphological cues (Bloom, 1981; Cheng, 2005, p. 12; Li & Thompson, 1981). Instead, the Chinese language uses lexical and syntactic cues to represent conditionals, and speakers and listeners also rely on the context and shared knowledge to comprehend messages about conditional relationships (Wu 1994, p. 143). Since Dictogloss students had more practice with collaboratively reconstructing texts and making their work products as accurate and as complete as possible, it is reasonable that they attended more to the correct use of the modals and conditionals in the texts. With possibly more opportunities to talk about constructing conditionals with the proper tenses, aspect markers, and modal auxiliaries when reconstructing texts collaboratively in their groups in Dictogloss discussions, students may have become more used to these structures that are used in English to express hypothetical situations. Collaborative Reasoning students may have avoided using modals because these constructions do not map well with constructions in L1. They may have been more prone to expressing hypothetical conditions in a way that required contextual support to help comprehension, as influenced by the Chinese conditional structure. Previous studies indicate that Collaborative Reasoning students are prone to make a claim or describe a statement and then use connectives like *because* or *but* to express their reasoning, rather than employing modals and conditionals.

Similar to modal and conditional production, students in both conditions included more bound morphemes in their posttest when compared to the pretest. This again indicates discussions could facilitate students' use of linguistic structures in the L2 which that are not familiar to them. The author predicted that since Dictogloss students would have more practice with collaboratively reconstructing texts and making their work products as accurate and as complete as possible, it was reasonable to predict that they would produce language that had a higher accuracy rate than Collaborative Reasoning students, whose focus was to express their ideas about the topic. Results, however, did not support the author's prediction. Although they had the same number of bound morphemes as Collaborative Reasoning students in the posttest, Dictogloss students had more omitted bound morphemes and bound morpheme and word choice errors, which shows that Dictogloss students had a lower bound morpheme and word choice accuracy rate compared to the Collaborative Reasoning students.

It seems somewhat perplexing that the Dictogloss group had a higher accuracy rate for modals and conditionals but not for bound morphemes and word choice. Why is this so? A plausible explanation is students' limited attentional capacity. Levelt's (1989) model assumes that syntactic encoding is automatic for adult native speakers. In comparison, language learners may find it effortful and are slower in accessing information stored in lemmas. Skehan (2009) stated that if pressure was put on performance, such as if there was a need to use lower-frequency lexis or if the task was non-negotiable, lemma retrieval and the assembly of the current utterance at the Formulation stage would be affected, disrupting accuracy or fluency. Demands of less frequent lexis and low flexibility in the task would call for much controlled processing and attention (Dörnyei & Kormos 1998; Kormos 1999, 2000). According to Schmidt (2001), attention is limited, selective, partially controllable by the individual, leads to

consciousness, and is essential for learning. It is possible that Dictogloss students allocated more attention to modals and conditionals because they anticipated these linguistic structures were the experimenter's (author's) emphasis from her overview of these elements at the beginning of the program. The bound morphemes might also have been less salient to the students than modals and conditionals and therefore did not attract their attention (VanPatten, 1989). As a result, there might have been less processing of other linguistic structures in Dictogloss discussions.

In addition to attention, the depth of processing affects how information is remembered. The concept of depth of processing came from the cognitive psychology field on first language processing (Craik & Lockhart, 1972): if a person analyzes meaning when processing linguistic information and uses prior knowledge to strengthen the process, the odds of retaining the information are greatly increased. In second language studies, the role of depth of processing on grammatical or lexical development is also empirically supported (Leow, 2015, p.213). Deeper-levels of processing are seen to be correlated with better performance (Leow & Mercer, 2015, p. 78). For instance, Shook (1994) found more attention (i.e. deeper level of processing) is facilitative for intake and production of the Spanish perfect tense and relative pronouns. Adrada-Rafael (2017) also found that there is an association between deeper processing and more accurate production of the imperfect subjunctive in Spanish and higher reading comprehension.

From the author's observations of the discussion sessions from both conditions and responses from the Collaborative Reasoning/Dictogloss evaluation surveys, more interaction in English occurred among group members in the Collaborative Reasoning condition. Compared to the Dictogloss students, what Collaborative Reasoning students expressed was spontaneous, and information used to support opinions was not only from the text that they had heard. The process of trying to understand each other's talk and integrate language resources to convey their

thoughts is indicative of deeper processing of linguistic information, not necessarily modals and conditionals, but rather forms that facilitated better understanding and expression. The potential experience of pulling together pieces of linguistic information from various sources (e.g. the texts, personal experiences, other reading materials, etc.) to meet communicative needs might have resulted in more processing of bound morphemes and word choice, resulting in higher accuracy on these structures in posttest production. Data from discussion sessions would need to be examined in future research to confirm this explanation, which this is not within the scope of this study.

Regarding measures employed to evaluate different linguistic aspects of learners, the reading fluency test had good internal consistency despite the very little time it took. The reliability of the speaking task; however, was low. The author tried many ways to tighten up the pre-posttest correlation, including removing topic variance from both pretest and posttest fluency and complexity scores by standardizing scores respectively with the means and standard deviations of pretest topic A, pretest topic B, posttest topic A, and posttest topic B. Yet this attempt still yielded similar results. Speech production stages are subject to the effects from situational, linguistic, task, and learner variables (Izumi, 2003, p. 191). Thus, the low reliability of the speaking task is affected by the fact that speaking responses were two to three minutes long. These are very small samples of behavior that could have been influenced by situational factors as a function of individual student variables. For example, some students may have been more interested in one topic or another, and this could have contributed to differences in scores. Students' performance also depended on how easily they could retrieve the right words smoothly and whether they had enough linguistic resources to capture the relationships between complicated ideas for the specific topic at that moment.

Another explanation for the speaking task's low reliability could be the variable audience for the speakers during the paired speaking task. To make the speaking task as natural as possible, the author did her best to create an audience for the speakers. The audience was the speaker's partner. Partners were instructed to maintain eye contact and attention and provide emotional support by nodding, smiling, or saying "You are doing great", or "You can do it" without giving feedback on the speaker's production such as correcting or making suggestions on content, word use or grammar. Practical application of the instructions was somewhat problematic because only one trained experimenter explained the process of the speaking task to students, and the whole class did the task simultaneously. The partners in the pairs were not well-trained, and the experimenter was not able to attend to all the pairs at once. The experimenter observed that while the majority of the partners adhered to the instructions, some ignored the speakers and did their own work. Variability of pair interactions could have affected speakers' fluency and complexity, since the speakers ignored would be talking to themselves and may have felt embarrassed or less motivated to continue when encountering a problem. Other speakers may have pushed for more when encouraged by their partners.

Collaborative Reasoning students had substantially better attitudes toward Collaborative Reasoning discussions than Dictogloss students did toward Dictogloss discussions. However, participation in the Collaborative Reasoning or Dictogloss group did not affect students' attitude toward English language use. This result is different from the author's prediction that there would be improvement for both conditions, or the self-ratings for observed progress may be higher for Collaborative Reasoning students because talking about their own ideas and experiences on intriguing topics would increase learners' willingness to communicate and alleviate their anxiety in speaking in English more than discussing specific forms used in texts.

Why is it that students' attitudes toward English use did not change over the course of the study? Some explanations could be drawn from students' responses to the open-ended questions from Collaborative Reasoning/Dictogloss Evaluation survey. They reported they rarely had experiences actively using English (example student comment 1: *I have to keep thinking and respond to my group members very often*; example student comment 2: *I have to use English which I am not good at to speak*), they were nervous about speaking English (example student comment: *I get really nervous when I don't know what to say*), time was limited for the discussion sessions (example student comment: *I think our lessons are not enough, just one period only*), and they didn't know if they had learned from doing Collaborative Reasoning or Dictogloss discussions (example student comment 1: *I don't know if my English improved*; example student comment 2: *We can barely learn new vocabulary in it, but I think it's our own responsibility to learn such fundamental things*).

Students' comments may have been influenced by the kind of language instruction that they were used to. English instruction starts at grade three in Taiwan (國民中小學暨普通型高級中等學校語文領域(英語文)課程綱要草案 [National Elementary and Junior High School and High School General Language Course (English) Course Outline], 2015), which means that before students participated in this study, they had received eight to nine years of English instruction, during which the majority of the time they listened to the teacher and took notes. Students from this study reported that they have been used to using English only for reading and writing (example student comment 1: *Most of the student in Republic of China still speak Chinese in class. We always talk about grammar and nothing else. If someone want to strengthen their own speaking. They should go to cram school* [private institutions specializing in preparing

students for meeting particular goals, usually passing standard exams]; example student comment 2: *Always Chinese. Teacher always talk a lot but students usually don't have time to speak English. Don't talk about discussion*). Four 60-minute sessions from the study is quite a small proportion compared to the time students had spent in prior English classes. Therefore, the short duration that they were involved in using English actively might not have changed what they had long thought of English and attitudes toward using the language, even though they liked the interactions and opportunities to practice speaking English in the discussions. Students' perceptions about learning may also have influenced their attitudes toward these discussions. From their comments that they were not sure if they had learned a lot from the discussions and that lecture-type classes provide more input for them to learn more, it seems like many students are influenced by an ideology that is deeply rooted in Chinese culture: learners are recipients of knowledge (Butler, 2017, p. 330), and teaching is more about transmitting authoritative knowledge from the teacher to the student than collaboratively creating, constructing, and applying knowledge (Hu, 2002, p. 99; Zhang & Liu, 2014).

Why is it that students were more engaged in Collaborative Reasoning discussions but their attitudes toward English use were not different from those of Dictogloss students? Attitude changes over time; for example, the level of willingness to communicate is affected by students' self-perceptions, social factors, context, and situational variables (Kang, 2005; Léger & Storch, 2009; MacIntyre et al., 1998). Contextual factors like simplicity of the topics for Collaborative Reasoning students and insecurity from not making "complete" notes for Dictogloss students may also have contributed to such results. Collaborative Reasoning students mentioned that there were times there was nothing more they could think of to say because all group members had agreed on their opinion toward the topic, which did not trigger many layers of discussion.

Dictogloss students mentioned that they hadn't taken sufficient notes to contribute to the discussion. These experiences could have impeded the increase of students' willingness to communicate, increased language anxiety levels, and lead to students' doubts about their oral proficiency in English.

In terms of argument production, no difference was found for argument, counterargument, or rebuttal production between Collaborative Reasoning students and Dictogloss students in this study. These results are different compared to previous Collaborative Reasoning studies. In past research, elementary students who had Collaborative Reasoning discussions in their first and second languages produce more arguments, counterarguments and rebuttals in reflective writing when compared to no-treatment control students who had regular instruction (Dong et al., 2008; Reznitskaya, Anderson, & Kuo, 2007; Zhang, Anderson, & Nguyen-Jahiel, 2013). It was hypothesized that children learned "not what to think, but how to think" (Reznitskaya et al., 2009, p. 29) and enhanced their abstract knowledge of argumentation from Collaborative Reasoning discussions. Hsu et al., (2016) also found that Chinese-speaking college freshman EFLs were more inclined to have more counterarguments and rebuttals in their talk if they had participated in Collaborative Reasoning discussions. Since the university students were more advanced in cognitive development but more challenged in second language proficiency compared to elementary students, it was hypothesized that Collaborative Reasoning students would learn something about argumentative production in their second language while discussing controversial issues with their peers in English, whereas no-treatment control students were less capable of converting their thoughts into second-language arguments because they had very limited or even no opportunity to do so in a typical English teaching and learning environment.

Explanations for such differences between the results of this study and past research may come from the background characteristics of the populations in the studies. First, students in this study were college freshmen, who presumably were capable of mature argumentative thinking compared to children. Second, the study participants were from an elite university in Taiwan, which compared to the provincial university in Hsu et al.'s (2016) study, were likely to be advanced in argumentative thinking prior to college. Support for this explanation can be observed in the percentage of students who spontaneously produced counterarguments and rebuttals when they first did the speaking task. For the Collaborative Reasoning students in Hsu et al. (2016), 48 percent produced spontaneous counterarguments and 48 percent produced spontaneous rebuttals. In this study, 75.4 percent of Collaborative Reasoning students and 72.3 percent of Dictogloss students had spontaneous counterarguments, and 73.8 percent from the Collaborative Reasoning group and 58 percent from the Dictogloss group had spontaneous rebuttals. Several students approached the author after class and commented that it would be more interesting if they could choose and discuss more complex topics.

Taking a closer look at the structure of argument production, more relevant C-units and less meta-talk in Chinese in posttest performance suggest that students seemed to be more familiar with using English to express thoughts after having the opportunity to do so in discussions. A few other interesting findings were that Collaborative Reasoning students had more utterances related to the topic, and Dictogloss students had more repetitions and irrelevant C-units. Repetitions came in the forms of summarizing what had been said and restating the thesis. Irrelevant C-unit included things like “*Thank you for your listening.*” A hypothesis for this phenomenon is that Dictogloss students seemed to be treating the speaking task like a standardized test compared to Collaborative Reasoning students, who were more focused on

sharing their thoughts about the topic. This hypothesis may also explain the significant time-condition interaction in the pre-posttest comparison for repetition. Dictogloss students may have had the procedures of an oral test in mind when they responded. A prototype oral test response would consist of a thesis, reasoning including counterarguments and rebuttals to support one's position, a summary to wrap up, and a formulaic ending thanking the audience. In contrast, Collaborative Reasoning students may have elaborated with more propositions to explain their reasoning and to get their points across, while not necessarily following an oral test format.

Limitations and Future Research

There were several plans that could not be implemented. There was not a no-treatment control group for this study because at the time of the intervention, there were not enough instructors who were willing to participate in this study. With four intact classes randomly assigned to either the Collaborative Reasoning or Dictogloss condition, this study does not have benchmarks to compare the outcomes of the two conditions. Taking the findings for fluency as an example, it is unknown whether having Dictogloss discussions interfered with fluency, or partaking in Collaborative Reasoning discussion improved fluency. Also, as splitting the class in half and randomly assigning students to two conditions was not acceptable to the instructors, it was impossible to fully control for background characteristics of students, nor could possible cohort or teacher effects be detected. Moreover, due to the loss of another site with vocationally-oriented students, only elite students participated in this study. How Collaborative Reasoning and Dictogloss discussions would work with a range of Chinese-speaking EFLs (elite students and vocationally-oriented students) is unknown.

Time constraints was also a crucial issue, both at the discussion level and at the intervention level. Compared to previous Collaborative Reasoning studies, unproven elements

(e.g. individual writing after Collaborative Reasoning discussions) were added to balance the proportion of listening, discussing, writing and reading time across the two conditions.

Discussions in the Collaborative Reasoning condition was at most only a third of a 60-minute session. To integrate with the schedule of the Freshman English course where this study took place, only one discussion session was run per week for four weeks for each class. Thus, the length and intensity of Collaborative Reasoning discussions were notably lighter than in previous studies, which may have affected intervention outcomes. Intervention effects quite likely would have been stronger if students had longer or more intensive participation in discussions. For example, Zhang et al. (2013) had two 20-minute sessions per week for four weeks, yielding strong results in English language learners' spoken and written English and attitudes toward learning English.

A few inconsistencies need further investigation. Some findings were inconsistent with previous literature, such as no difference between instructional conditions for argument, counterargument, or rebuttals. Also, no attitude difference was found after the intervention or between conditions. In addition, examining the actual interactions in discussion sessions from both conditions would enable more understanding about such findings as the opposite patterns in accuracy for modals and conditionals and bound morphemes and word choice. Thus, needed next steps for future research are longer interventions with a broader range of students and detailed analysis of what happened during the discussion interactions.

Conclusion and Implications

The interestingly different patterns found in students' language production carry implications for foreign language instruction. Students who received meaning-focused instruction, and thus as meaning-focused instruction was realized in this study, had opportunities

for spontaneous interaction exchanging opinions in their second language, developed better fluency, produced more utterances related to the topic, achieved higher accuracy rates in non-target linguistic forms, and had better control of integrating linguistic processes; however, they also made more errors in targeted linguistic forms and did not have better argument production. Overall, despite the brevity of the Collaborative Reasoning discussions and variability amongst individuals and variability in task administration, which may have lessened its effects, students who received meaning-focused instruction seemed more willing to experiment with using their second language to communicate, which is a hard goal to achieve in an English-as-foreign-language environment where students are unaccustomed to free language use.

In contrast, students who received form-focused instruction had more restricted production but more accurate use of targeted linguistic forms than students who received meaning-focused instruction. There are likely trade-offs between the effects of meaning-focused instruction and form-focused instruction. Interaction focused on specific second language linguistic forms may enhance correct production of its kind at the cost of other aspects of language use such as fluency, accuracy rate in non-target linguistic forms, and integration of linguistic processes to make decisions.

This study found positive relationships between students' fluency and attitude toward English language use, as well as between language complexity and fluency. These positive relationships could reflect causal influences in either direction or indicate reciprocal causation. The more positive students' attitudes toward English language use, the more fluent the students were; the more fluent students were, the better they felt about using English. Likewise, production of complex language and fluency could be interdependent. The higher students' capacity for processing pieces of lexical and syntactic information (as reflected in reading

fluency), the more complex their statements were (in language production); the simpler students' expressions, the less capable they were in pulling information together in limited time to fulfill their communicative needs. These findings point to the critical functions that foreign language instructional activities have for fostering positive attitudes toward the new language and enabling some degree of fluency in the new language even though it is rarely used outside the classroom.

FOOTNOTE

¹Taking into account of time and resources, the author focused on the outcomes of the speaking task for the purpose of the dissertation. Therefore. The written part has been taken out from research question one: Does the focus of task affect students' L2 spoken and written production?

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APPENDIX A

COLLEGE MAJOR CHOOSING: JIA-YI'S CHOICE

Jia-Yi Shen has just taken her College Entrance Examination and is now facing a dilemma: what should she choose for her college major? Jia-Yi has shown great interest in history ever since childhood; however, her parents want her to consider something more popular, such as finance or accounting.

Even though Jia-Yi's parents understand that their daughter is more interested in history than in other fields, they feel they have the responsibility to tell her what reality is like. They hope that Jia-Yi will consider this issue from a practical point of view. Students who major in history are reported to have the hardest time landing jobs after graduation. Faced with this difficult fact, many graduates would give up their interest and choose to study something more practical in graduate school. Even if one could find a history-related job, he/she will be less likely to make good money compared to those who specialize in accounting or finance.

Although Jia-Yi agrees that history may not be as useful or profitable a major as finance or accounting, she still hesitates to give up. She thinks if she studies history, she could achieve good grades without much effort. Her good grades would allow her to apply for scholarships and other funding opportunities. Besides, studying something she is good at could give her confidence and in turn allow her to achieve more academically. Jia-Yi is passionate about history, and in general, interest in the subject matter is a central source of motivation for learning. Who knows, she may become an expert in this field one day.

APPENDIX B

TECHNOLOGY IN CLASSROOMS: DISTRACTOR OR FACILITATOR?

Back in high school in Hong Kong, Nancy often took notes on her laptop while listening to lectures and searched for resources during class to achieve a better understanding of course materials. Computers and other technologies were widely used in classroom settings. However, upon entering university, she was told that personal computers are usually not allowed in class. One of her teachers even asks students to turn in their cellphones before class begins.

Nancy thinks this will impede efficient learning. Typing notes on the computer is more efficient than writing in a notebook. Besides, if students are unfamiliar with a term or formula, they could easily find the answers quickly on the Internet. With the course material available instantly on the course website, students will not get lost in lectures. Students should also learn strategies for implementing technology in their own learning. Nancy tries to call on other classmates to negotiate with the teachers.

To Nancy's surprise, her view is strongly opposed by her friend, Mike. He thinks if students could use their own technology in the classroom, they would inevitably be distracted because they would not be able to resist the temptation of using computers and smartphones for personal purposes. Moreover, teachers would find it more difficult to manage the class if their students were constantly looking at their devices. Students may become less focused in class if they could easily access the course-related materials on the course website. Also, some students may learn better from traditional pen-and-paper note-taking. Students should be trained to think and write critically instead of turning to technology and becoming lost in the sea of information.

APPENDIX C

HOW TO DEAL WITH RUDE CUSTOMERS?

Terry is a college student majoring in aviation management. During summer break, he took an internship in an airport to assist passengers at check-in. He hoped that if he worked hard, he might obtain a strong recommendation letter for future employment. One day, a flight was delayed, and no one knew how long the wait would be. Some passengers became anxious and tried to get a firm answer from Terry. Terry, not knowing the answer either, could do nothing but repeat the airline's flight information in a polite manner. After an hour, some passengers lost patience and started complaining about the service of the airline. One customer's dissatisfaction finally devolved into verbal personal attacks, and he shook his fist and swore at Terry. Terry, after suppressing his anger as long as possible, could not help but shout at the passenger, which escalated the conflict. Afterwards, Terry was disciplined by the airline for his impulsive behavior, which had a negative impact on the airline's image.

Some of his classmates, after learning about the situation, felt sympathetic. They think the service staff have the right to protect their own safety and dignity. Blaming the service staff for flight irregularities will not make the plane take off sooner. The service staff's responsibility should be providing possible solutions to the customers' reasonable requests, not humbly meeting every customers' needs.

However, other students think the staff's actions would directly impact the airline's public image. Quality service staff should handle the situation properly and amiably. Additionally, for practical considerations, Terry should have controlled his temper no matter how irritated he was in hopes of receiving a good recommendation letter.

APPENDIX D

WHAT WILL YOUR CAREER BE LIKE TEN YEARS FROM NOW?

In a career-search workshop for college students, participants were asked to envision what their career will be like in ten years from now.

Becky has heard many stories from her senior schoolmates about being overworked, stressed out, and having deteriorating health and no personal time. Although Becky would like to be to be successful in her future career, she doesn't want to be a workaholic. She has also heard about study results that greater income might not bring greater happiness. Becky would like to achieve a work-life balance. Family, places to visit, and hobbies to pursue are just a few examples she could think of that are as important as work. Becky believes that work is an important part of life, but is not life itself.

John thinks Becky is too idealistic and there is no such thing as a "work-life balance". Nowadays, the soaring property prices and education fees are not affordable unless one has a higher-than-average income. As a result, it will not be possible to avoid working extremely hard for at least the first ten years of one's career. Just as the old Chinese saying goes, "A lazy youth, a lousy age." If people don't devote themselves to work, they will soon find themselves in a disadvantaged position and might be replaced by others who are more willing to work hard. If John were to lose his job, he would have to rely on his parents for money. He thinks that would be a shame. Becoming a workaholic is just the way to survive if one wants to lead a decent life.

APPENDIX E

TO STUDY ABROAD OR NOT?

Andrew is a senior in college. As graduation draws near, students are busy planning their future. Some are looking for local jobs, while others are applying for graduate studies abroad. Though not very wealthy, Andrew's parents support whatever choice he makes. Andrew is curious about overseas experience, but he also worries about the huge expense.

He thinks studying abroad would be a good way to broaden his horizon by immersing himself in a different culture, experiencing different lifestyles, and mastering a new language, all of which would enrich his resume. If he wants to apply for a management level job at an international business, overseas experience is definitely required. The experience abroad and awareness of cultural differences may be a big plus for his future career.

However, Andrew becomes very indecisive as he thinks about the huge expense of studying abroad, especially after he discovered that his friend Amy was not highly valued in her company, even with her graduate degree from a top UK university. She mentioned to Andrew that beginning work earlier would provide a better chance of promotion, and had she started working right after college graduation, it would have greatly lightened the load on her parents. She also warned Andrew that language and cultural barriers in a foreign country could make many routine tasks difficult. Needless to say, it is difficult to study in a different language one does not know well. Furthermore, it can be lonely to deal with these problems when one is far from home.

APPENDIX F

DO ACADEMIC QUALIFICATIONS LEAD TO LIFELONG SUCCESS?

Since becoming a college freshman, Jacob has filled his days with sports and activities. Although he was a top student in high school, he achieved below average academic results at the end of his first semester in college.

Emma, his girlfriend, thinks students should not underestimate the importance of excellent academic performance and tries to persuade Jacob to spend less time on extracurricular activities. From her perspective, excellent academic achievement is the main index for one's ability, quality of life, and career potential. She believes that if people can achieve academic success, they are proving that they are more self-disciplined and have a better capacity for learning, which could lead to the greater likelihood of becoming successful. Emma claims her older sister, Stacy, as an example. Stacy was a typical good student. She focused solely on her studies, and her grades were always in the top 10 percent. After she graduated with a PhD in chemistry, she became a professor at a top university in China.

Jacob is confused after his discussion with Emma. If he quits the activities he is involved in, he feels he will not be able to develop his social skills, which seem to be crucial for leading a successful life. He knows that there are many cases of drop-out students who still achieve success, such as Mark Zuckerberg, the founder of Facebook. Nick, who was Jacob's high school classmate, also became a successful self-employed entrepreneur selling hand-made crafts. Jacob thinks that maybe success is determined by many factors apart from academic qualifications.

APPENDIX G

SHOULD STUDENTS WEAR UNIFORMS?

Monica is quite dissatisfied with her high school's uniform policy. She thinks school uniforms might hurt students' self-esteem. High school students are usually self-conscious. If they wear uniforms, other people might determine whether the students are from a top-tier high school or a vocational school and make judgments about them. Some students from vocational schools may then feel inferior to those from top-tier high schools. Having uniforms also will stop students from showing their personalities through clothing. Monica feels that this restriction will encourage her friends and her to find other ways to react against authority. They might try to express themselves through exaggerated hairstyles, make-up, or tattoos. Moreover, she thinks the uniform policy discourages diversity and contradicts the purpose of education. If students always follow rules and never have the power to decide, how can they learn to make good decisions?

School officials claim that uniforms could reduce the peer pressure between students who try to show superiority via the name-brand clothing they wear. If students from lower-income families feel less pressured to fit in by wearing "better" clothing, the socioeconomic differences among students may be minimized. Having uniforms also sets a more professional tone for schools, and attention in the classroom will be given to academic studies instead of how students dress. Besides, wearing uniforms will create a sense of unity and belonging that will unite students as part of a single community. Uniforms will remind students to be aware of their behavior and raise their expectations of themselves.

APPENDIX H

CO-ED OR SINGLE-GENDER SCHOOL?

Emily is graduating from junior high and stands to enter one of the best local high schools. However, she is concerned because the high school is a single-gender school. Not knowing how to decide, Emily turns to her aunt and uncle, who graduated from single-gender and co-ed schools respectively.

Her aunt, Anna, thinks studying in a single-gender school would delay one's adaptability to the real world. The ability to communicate and collaborate with people of the opposite sex is invaluable. She worries that Emily might run into rough transitions adjusting to co-ed work environments. Many of Anna's classmates said that the uneasiness they felt when interacting with coworkers had impacted their productivity. Also, given that curiosity and attraction between opposite sexes is a natural process, Anna thinks that one might actually be more willing to work hard and demonstrate academic achievement to impress the opposite sex.

In contrast, Emily's uncle, David, thinks students in Emily's situation should focus solely on gaining admission into a good university, and studying in a single-gender school would mean fewer distractions and better academic results. David recalls that many students in his school wasted much time and energy trying to impress their classmates: boys would start smoking and girls would dress up. If there weren't students of the opposite sex at school, one might feel more at ease and be more focused in pursuing knowledge in challenging subjects. Furthermore, there are still plenty of other occasions, like cram schools and clubs, if students would like to interact with the other sex.

APPENDIX I

PAIRED SPEAKING TASK PROTOCOL

Time = 15 minutes each student (1 min intro, 2x2 min listening and make notes, 10 min interview), 30 minutes total.

Materials = Instructor's computer connected to the speakers in the classroom or a web interface, Topic A: "Studying Abroad or Not?" and Topic B: "Do Academic Qualifications Lead to Lifelong Success?" audio recording files, note sheets, pens, headphones, audio recorders, text hardcopy for investigator.

Instructions for Topic A:

You and your partner will hear different audio-recorded texts.

Step 1: If you are assigned to topic A, please click on the link for Topic A: "Studying Abroad or Not?" and listen to the audio file. The recording will be played twice. You may not make notes and should focus on comprehension when listening for the first time. You may make notes when listening for the second time. After listening to the recorded text, you may raise your hand and ask me if you don't understand the recording. Then, Judy will ask you a question about your topic. Please respond in English and record your own answer. When you are finished with your turn, please stop recording and switch roles with your partner. You will have enough time to complete the task. I will remind you when there are 5 minutes left and when there is 1 minute left.

Step 2: If you are the questioner for Topic B, your partner will be asked: "Do you think academic qualifications lead to lifelong success?" Please be an encouraging listener when your partner is responding to the question. When your partner has difficulties in expressing themselves, please provide encouragement (e.g. nod or say "You are doing great!" "You can do it!"). However, please do not provide your partner help on vocabulary, grammar, or content. Do not discuss with your partner about Topic B.

Steps for investigator:

- 1. Let students listen to Topic A audio recording.**
- 2. Ask student if they have any questions about the audio recording.**
- 3. Begin paired speaking task.**
 - a. Remind student when there is 5 and 1 minute left.**
- 4. Stop text reconstruction. Ask student to put down name and student ID on recording.**
- 5. Ask students to switch roles.**
- 6. Let students listen to Topic B audio recording.**
- 7. Ask student if they have any questions about the audio recording.**
- 8. Begin paired speaking task.**
 - a. Remind student when there is 5 and 1 minute left.**
- 9. Stop text reconstruction. Ask student to put down name and student ID on recording.**

APPENDIX J

WRITING TASK PROTOCOL

Time = 25 minutes each student (1 min intro, 5 min listening and make notes, 15 min text reconstruction)

Materials = Instructor's computer connected to the speakers in the classroom or a web interface, Topic A: "Should Students Wear Uniforms?" and Topic B: "Co-ed or Single-Gender School?" audio recording files, note sheets, pen, headphones, text hardcopy for investigator.

Instructions:

You will hear an audio-recorded text that will be played twice. You may not make notes and should focus on comprehension when listening for the first time. You may make notes when listening for the second time. After listening to the recorded text, you may raise your hand and ask me if you don't understand the recording. Then, I will ask you to reconstruct the text: write down the information you have heard as completely and as accurately as possible. Do not write about your opinion. Please don't try to memorize the text. When you are finished with your reconstruction, please hand it to me or save the word document and email it to learn.lang.collaboration@gmail.com. Make sure your name and student ID is on the top of the page. You will have enough time to complete the task. I will remind you when there are 5 minutes left and when there is 1 minute left.

If you are assigned to topic A, please click on the link for Topic A: "Should Students Wear Uniforms?" and listen to the audio file.

If you are assigned to topic B, please click on the link for Topic B: "Co-ed or Single-Gender School?" and listen to the audio file.

Steps for investigator:

- 1. Let students listen to audio recordings.**
- 2. Ask student if they have any questions about the audio recording.**
- 3. Begin text reconstruction.**
 - a. Remind student when there is 5 and 1 minute left.**
- 4. Stop text reconstruction. Ask student to put down name and student ID on text.**

APPENDIX K
READING FLUENCY TEST

DIRECTIONS: In the space next to each number, write T if the statement is true, write F if the statement is false.

_____ Example 1: Taipei 101 is in Taipei City.

_____ Example 2: Sun Moon Lake is in Taipei City.

You should have answered T for Example 1 and F for Example 2, because Taipei 101 is in Taipei City, but Sun Moon Lake is not.

TIME: This test will have two sections. For each section, you will have **2.5** minutes to complete as many questions as you can. You will be informed when there is 1 minute left for each section. Wait until the teacher tells you before you turn the page and begin for each section.

Section 1

- _____ 49. Plants and animals need water to live.
- _____ 55. Peaches, plums, and apples are fruits.
- _____ 27. Exercise is good for your health.
- _____ 41. There are seven days in a week.
- _____ 86. The earth is smaller than the moon.
- _____ 80. A ping-pong ball can float in water.
- _____ 38. We can get wet in the rain.
- _____ 88. A television needs electricity to run.
- _____ 35. Tigers are afraid of sheep.
- _____ 36. Ice is frozen water.
- _____ 90. Carpets are used to cover the floor.
- _____ 91. A meter is longer than an inch.
- _____ 12. Babies can walk as soon as they are born.
- _____ 19. Books are made of paper.
- _____ 46. The sun sets in the morning.
- _____ 31. People use hands to walk and feet to eat.
- _____ 18. A bell makes a ringing sound.
- _____ 5. Bicycles go faster than airplanes.
- _____ 65. Breakfast comes before dinner.
- _____ 108. A hammer is used to put nails into wood.
- _____ 77. Ice cream does not melt in heat.
- _____ 34. We can tell the time from a chair.
- _____ 56. You can buy food from a supermarket.
- _____ 107. A piano is a tool used by carpenters.

- _____ 13. Turtles have long ears.
- _____ 57. We should not be mean to our friends.
- _____ 98. Juice is a drink made from fruit.
- _____ 74. A scissor is used to hold water.
- _____ 78. A lid goes on top of a box.
- _____ 29. Eggs are hard as rocks.
- _____ 45. Eating a lot of candy is good for your teeth.
- _____ 79. The Moon goes around the Earth.
- _____ 89. You need to peel the skin before eating an orange or banana.
- _____ 6. The sun gives us light and heat.
- _____ 52. When you look into the mirror, you see yourself in it.
- _____ 32. A puppy is a baby bird.
- _____ 53. At school we are taught to read and write.
- _____ 67. Your shadow follows you wherever you go.
- _____ 59. People have four legs.
- _____ 102. Apples are spicy.
- _____ 16. A square has four sides.
- _____ 25. The milk we drink comes from horses.
- _____ 50. Telephones are vegetables.
- _____ 3. A car is much longer than a train.
- _____ 95. Your father's brother is your uncle.
- _____ 66. A violin is a string instrument.
- _____ 58. Christmas comes before Thanksgiving.
- _____ 93. Most people have fifteen fingers on each hand.
- _____ 100. Cars are supposed to stop when they come to a stop sign.

- _____ 87. Most computers are made of wood.
- _____ 61. You can find camels in the desert.
- _____ 14. The flu is a kind of sickness.
- _____ 62. We need to wear more clothes when it is cold.
- _____ 48. Heaters warm up rooms.
- _____ 40. There are 100 states in the U.S.

Wait until the teacher tells you to begin the next section.

Section 2

- _____ 28. Some people put salt on their food.
- _____ 54. Basketball is a team sport.
- _____ 69. Hens lay eggs, and monkeys lay eggs, too.
- _____ 85. There are 20 minutes in an hour, and 80 hours in a day.
- _____ 20. A pencil is used for eating food.
- _____ 9. A mushroom is a kind of room.
- _____ 82. An elevator can take you up and down.
- _____ 39. A rainbow has seven colors.
- _____ 81. When it is dark in the room, we turn on the light.
- _____ 8. There are people living on the moon.
- _____ 51. A raincoat is most useful when it is sunny.
- _____ 68. A triangle has five sides.
- _____ 26. Baby dogs are called bunnies.
- _____ 92. Children are older than adults.
- _____ 42. The sky is blue when it is sunny.
- _____ 1. Lions like to eat grass.
- _____ 4. Cats can catch mice.
- _____ 7. A baseball is bigger than a basketball.
- _____ 94. Owls are usually awake during the night.
- _____ 23. We breathe air.
- _____ 37. Tea is made in a television.
- _____ 84. Cars can cross the street when the green light is on.

- _____ 64. The eyebrows are below the eyelashes.
- _____ 24. People usually wear shoes on their hands.
- _____ 96. Letters are sent in the mail.
- _____ 43. Many kinds of fish live in the ocean.
- _____ 83. Seventh grade students are elementary school students.
- _____ 73. A pizza is usually in a round shape.
- _____ 44. Elephants can fly.
- _____ 72. French fries are made from carrots.
- _____ 76. The sun looks small because it is far away.
- _____ 2. An ant is smaller than an elephant.
- _____ 15. All the flowers in the world are red.
- _____ 71. There are twelve months in one year.
- _____ 97. A five page story is longer than a seven page story.
- _____ 105. The ancient Egyptians built pyramids.
- _____ 22. Fish need water to live.
- _____ 17. A zebra has no stripes.
- _____ 33. You see steam when water boils.
- _____ 10. It never snows in Alaska.
- _____ 99. Your hair will grow very long if you don't cut it for a long time.
- _____ 103. It is always cold in Thailand in summer.
- _____ 63. A football game is played in a swimming pool.
- _____ 75. Pandas are from China.
- _____ 11. We can find a lot of books in the library.
- _____ 60. We go to elementary school at the age of 80.
- _____ 30. We can see many animals in the zoo.

- _____ 21. We stop when we see a red traffic light.
- _____ 106. A ladder is a kind of musical instrument.
- _____ 70. An air conditioner can make us feel cooler.
- _____ 110. It is colder in the summer than it is in the winter.
- _____ 101. There is more water in the bathtub than in the ocean.
- _____ 104. In Germany, most people speak Spanish.
- _____ 47. Your mother's mother is your grandmother.
- _____ 109. We can see stars in the sky during a sunny day.

APPENDIX L

LANGUAGE EXPERIENCE SURVEY

DIRECTIONS: This survey is to learn about your language learning experience. Your answers on this survey will be strictly used for our research purposes and will not be shared with anyone outside of our research group. Please answer all questions. We thank you for your time in filling out this survey.

Birthdate: ____/____/____

month date year

Gender: ____male ____female

- 1. What is your native language (If you have more than one native language, check all that apply)?**

	<i>Mandarin Chinese</i>	<i>Min Nan</i>	<i>Hakka</i>	<i>Other Language:_____</i>
	☐	☐	☐	☐

- 2. How much time do you use this/these language (s) at home each day?**

	<i>Mandarin Chinese</i>	<i>Min Nan</i>	<i>Hakka</i>	<i>English</i>	<i>Other Language:_____</i> —
Percentage (should add up to 100%)					

- 3. How old were you when you first started learning English?**

- 4. Did/Do you learn English outside of regular school (e.g. private tutor, cram school, etc.)?**

Yes (Please go to Question 5).

No (Please go to Question 8).

- 5. How old were you when you first started learning English outside of regular school?**

6. How much time did/do you spend in English lessons outside of regular school each week?

	0-1 hour	1-3 hours	3-5 hours	5-7 hours	More than 7 hours
Kindergarten	☐	☐	☐	☐	☐
Elementary School	☐	☐	☐	☐	☐
Middle School	☐	☐	☐	☐	☐
High School	☐	☐	☐	☐	☐
College	☐	☐	☐	☐	☐

7. What kind of English instruction did/do you receive out of regular school?

	<i>Listening</i>	<i>Speaking</i>	<i>Reading</i>	<i>Writing</i>
Percentage (should add up to 100%)				
Kindergarten				
Elementary School				
Middle School				
High School				
College				

8. What kind of English instruction did/do you receive in regular school?

	<i>Listening</i>	<i>Speaking</i>	<i>Reading</i>	<i>Writing</i>
Percentage (should add up to 100%)				
Kindergarten				
Elementary School				
Middle School				
High School				
College				

9. Over this past year, on average, how much time do you spend studying English each week (do not include regular class time)?

0-1 hour	1-3 hours	3-5 hours	5-7 hours	More than 7 hours
☐	☐	☐	☐	☐

10. Over this past year, on average, how much time do you use English outside of regular class instruction each week?

<i>Watch English TV/Movies</i>				
0-1 hour	1-3 hours	3-5 hours	5-7 hours	More than 7 hours
☐	☐	☐	☐	☐
<i>Listen to English songs/programs</i>				
0-1 hour	1-3 hours	3-5 hours	5-7 hours	More than 7 hours
☐	☐	☐	☐	☐
<i>Read English books/magazines/ other reading material</i>				
0-1 hour	1-3 hours	3-5 hours	5-7 hours	More than 7 hours
☐	☐	☐	☐	☐

☐	☐	☐	☐	☐
<i>Have conversations in English</i>				
0-1 hour	1-3 hours	3-5 hours	5-7 hours	More than 7 hours
☐	☐	☐	☐	☐

11. Have you ever visited an English-speaking country?

Yes (Please go to Question 12).

No. You have completed this survey.

12. If yes, how long did you stay in that country?

13. What was your score for the English subject for your College Entrance Exam?

- The End -

Thank you very much for your hard work!

APPENDIX M

WILLINGNESS TO COMMUNICATE AND LANGUAGE ANXIETY SURVEY

Directions: This questionnaire has statements of your feelings about communication with other people, in English. Please indicate in the space provided the frequency of time you choose to do the following things in English in each classroom situation. If you are almost never willing to speak English, write 1. If you are willing sometimes, write 2 or 3. If you are willing most of the time, write 4 or 5.

Scale of frequency of time in English class:

1 = Almost never willing

2 = Sometimes willing

3 = Willing half of the time

4 = Usually willing

5 = Almost always willing

6 = Not Applicable

Speaking in class

- _____ 1. Speaking English in a group about your summer vacation.
- _____ 2. Speaking English to your teacher about your homework assignment.
- _____ 3. A stranger enters the room you are in, how willing would you be to have a conversation in English if he talked to you first?
- _____ 4. You are confused about a task you must complete, how willing are you to ask for instructions/clarification in English?
- _____ 5. How willing would you be to be an actor in a play in English?
- _____ 6. Describe the rules of a classroom activity in English.
- _____ 7. Do an activity in English.

_____ 8. Participate in a group discussion in English.

Reading in class (to yourself, not out loud)

_____ 1. Read part of an English novel.

_____ 2. Read an English article in a paper or magazine or on the Internet.

_____ 3. Read letters from a pen pal written in native English.

_____ 4. Read personal letters or notes written to you in which the writer has deliberately used simple words and constructions.

_____ 5. Read an advertisement in the paper or magazine or on the Internet to find something good you can buy.

_____ 6. Read reviews in English for popular movies.

Writing in class

_____ 1. Write an invitation to invite your schoolmates to a event in English.

_____ 2. Write down the instructions for your favorite hobby in English.

_____ 3. Write a report on your favorite animal and its habits in English.

_____ 4. Write a story in English.

_____ 5. Write a letter to a friend in English.

_____ 6. Write a newspaper article in English.

_____ 7. Write a summary in English.

_____ 8. Write down a list of things you must do tomorrow in English.

Comprehension in class

_____ 1. Listen to instructions in English and complete a task.

_____ 2. Fill out a form in English.

_____ 3. Take directions from an English speaker.

_____ 4. Understand an English movie.

On a scale of one to five, rate your opinion towards the statements below:

1 = Strongly disagree

2 = Disagree

3 = OK

4 = Agree

5 = Strongly agree

_____ 1. I am not bothered by someone speaking quickly in English.

_____ 2. I enjoy just listening to someone speaking English.

_____ 3. I cannot concentrate unless English is spoken very slowly and deliberately.

_____ 4. I get upset when I read in English because I must read things again and again.

_____ 5. I get upset when English is spoken too quickly.

_____ 1. Learning new English vocabulary does not worry me, I can acquire it very quickly.

_____ 2. I am anxious with English because no matter how hard I try, I have trouble understanding it.

_____ 3. The only time that I feel comfortable during English tests is when I have had a lot of time to study.

_____ 4. I feel anxious if English class seems disorganized.

_____ 5. I am self-confident in my ability to attend to the meaning of English dialogue.

_____ 6. I do not worry when I hear new or unfamiliar words, I am

confident that I can understand them.

- _____ 1. I do not feel nervous when I have to speak in English.
- _____ 2. I feel confident that I can easily use the English vocabulary that I know in a conversation.
- _____ 3. I may know the proper English expression but when I am nervous it just won't come out.
- _____ 4. I get upset when I know how to communicate something in English but I just cannot say it.
- _____ 5. I do not get nervous when writing something for my English class.
- _____ 6. When I become anxious during an English test, I cannot remember anything I studied.

APPENDIX N
SELF-ASSESSMENT ON SPEAKING

(for pretest)

Rate your English speaking skill according to the following criteria:

1 = Very hard

2 = Hard

3 = OK

4 = Easy

5 = Very easy

- _____ 1. How hard is it for you to express yourself fluently, with little hesitation and pauses?
- _____ 2. How hard is it for you to talk in a clear and easily understandable manner?
- _____ 3. How hard is it for you to take turns in a discussion?
- _____ 4. How often do you think you don't know enough English words to say what you want to say concisely and adequately (1 = Never; 2 = Few times; 3 = Sometimes; 4 = Often; 5= Almost always)?
5. a. In relation to your oral proficiency, what is, in your opinion, your weak point?
- b. What is your strength?

6. a. What aspects of your speaking skill do you think you should focus on, over the next 4 weeks?

Accuracy/ Cohesion/ Confidence/ Fluency/ Grammar / Intonation / Pronunciation/ Vocabulary

- b. What are you going to do specifically, to focus on this particular aspect of your speech (pick the top three that apply)?

7. Overall, how would you rate your level of proficiency in English in listening, speaking, reading, and writing?

Number	1	2	3	4	5
Representation	<i>Poor</i>	<i>Functional</i>	<i>Good</i>	<i>Very good</i>	<i>Native-like</i>

Reading	Writing	Speaking	Listening

- _____ 8. **Class participation** is defined as your level of input in English, in class discussion, small group discussions and other oral activities, **regardless** of your proficiency level in English. As of now, how would you rate your participation in class (1 being the lowest and 10 the highest).

9. Other Comment(s):

Self-Assessment on Speaking

(for posttest)

Reflecting on you English oral production over the past 4 weeks, rate your speaking skill according to the following criteria:

1 = Very hard

2 = Hard

3 = OK

4 = Easy

5 = Very easy

_____ 1. How hard/easy is it for you to express yourself fluently, with little hesitation and pauses?

_____ 2. How hard/easy is it for you to talk in a clear and easily understandable manner?

_____ 3. How hard/easy is it for you to take turns in a discussion?

_____ 4. How often do you think you don't know enough English words to say what you want to say concisely and adequately (1 = Never; 2 = Few times; 3 = Sometimes; 4 = Often; 5= Almost always)?

5. Overall, how would you rate your level of proficiency in English in listening, speaking, reading, and writing?

Number	1	2	3	4	5
Representation	<i>Poor</i>	<i>Functional</i>	<i>Good</i>	<i>Very good</i>	<i>Native-like</i>

Reading	Writing	Speaking	Listening

_____ 6. **Class participation** is defined as your level of input in English, in class discussion, small group discussions and other oral activities, **regardless** of your proficiency level in English. Reflecting on the past 4 weeks, how would you rate your participation in class (1 being the lowest and 10 the highest).

_____ 7. a. Do you feel that you have made some progress in relation to your oral proficiency during the past four weeks? (1 = Yes; 2 = No; 3 = I don't know)

b. If yes/ don't know, what aspects do you think (might) have improved? (Accuracy/ Cohesion/ Confidence/ Fluency/ Grammar / Intonation / Pronunciation/ Vocabulary etc...)

c. If not, why not?

8. Other Comment(s):

APPENDIX O

活動意見調查: FEEDBACK ON CR SESSION

1. On a scale of 1 to 5, with 1 being low and 5 being high, how well did your group work together? 由 1 到 5 (1 為最低，5 為最高)，你會給你今天的小組合作幾分？

Low High
① ② ③ ④ ⑤

2. Following up with your answer for Question 1, what would you do to raise your score by one point? 承第一題，你覺得你怎麼做可以讓你今天的小組合作高一分？

3. How do you feel about this statement: *I felt engaged in our group discussion today.* 由 1 到 5 (1 為最低，5 為最高)，你對以下的陳述會給自己幾分？「我有專心參與今天的討論」。

Low High
① ② ③ ④ ⑤

4. How do you feel about this statement: *I felt happy after our group discussion today.* 由 1 到 5 (1 為最低，5 為最高)，你對以下的陳述會給自己幾分？「參與完今天的討論我的心情不錯」。

Low High
① ② ③ ④ ⑤

5. What do you feel like you learned or got better at?
你覺得你學到了什麼？

6. Were there anything that your group expressed in Chinese because you didn't know its expression in English? If yes, what were they? 今天的討論中，你們這組有不知怎麼用英文表達，索性用中文溝通的部分嗎？如果有，是什麼（請列出最常出現的三項）？

Thank you for your comments :) 謝謝你寶貴的意見

APPENDIX P

活動意見調查: FEEDBACK ON DICTOGLOSS SESSION

1. On a scale of 1 to 5, with 1 being low and 5 being high, how well did your group work together? 由 1 到 5 (1 為最低，5 為最高)，你會給你今天的小組合作幾分？

Low High
① ② ③ ④ ⑤

2. Following up with your answer for Question 1, what would you do to raise your score by one point? 承第一題，你覺得你怎麼做可以讓你今天的小組合作高一分？

3. How do you feel about this statement: *I felt engaged in our group discussion today.* 由 1 到 5 (1 為最低，5 為最高)，你對以下的陳述會給自己幾分？「我有專心參與今天的討論」。

Low High
① ② ③ ④ ⑤

4. How do you feel about this statement: *I felt happy after our group discussion today.* 由 1 到 5 (1 為最低，5 為最高)，你對以下的陳述會給自己幾分？「參與完今天的討論我的心情不錯」。

Low High
① ② ③ ④ ⑤

5. What do you feel like you learned or got better at?
你覺得你學到了什麼？

6. Were there anything that your group expressed in Chinese because you didn't know its expression in English? If yes, what were they? 今天的討論中，你們這組有不知怎麼用英文表達，索性用中文溝通的部分嗎？如果有，是什麼（請列出最常出現的三項）？

Thank you for your comments :) 謝謝你寶貴的意見

APPENDIX Q
COLLABORATIVE REASONING EVALUATION

Mark your options with an X. 請在您的選項上標記「X」

1. I like Collaborative Reasoning discussions much more than regular classroom discussions.

與傳統的課堂討論相比，我更喜歡「合作推理」的小組討論。

Not at all
True (完全不贊同) ① ② ③ ④ *true* (完全贊同) *Very*
⑤

2. I am much more excited about participating in Collaborative Reasoning discussions than regular classroom discussions. 與傳統的課堂討論相比，我對「合作推理」的小組討論更有興趣。

Not at all
true ① ② ③ ④ *Very*
true ⑤

3. I think it is much more important to let others know about my opinions and ideas in Collaborative Reasoning discussions than in regular classroom discussions. 與傳統的課堂討論相比，我認為在「合作推理」的小組討論中讓別人知道我的想法更重要。

Not at all
true ① ② ③ ④ *Very*
true ⑤

4. I talked and shared my ideas much more in Collaborative Reasoning discussions than in regular classroom discussion.

與傳統的課堂討論相比，我在「合作推理」的小組討論中更常表達自己的想法。

Not at all
true ① ② ③ ④ *Very*
true ⑤

5. I listened much more carefully to what others said in Collaborative Reasoning discussions than in regular classroom discussions.

與傳統的課堂討論相比，在「合作推理」的小組討論中我更努力傾聽別人的想法。

Not at all
true ① ② ③ ④ *Very*
true ⑤

6. I did much better in Collaborative discussions than in regular classroom discussions.

與傳統的課堂討論相比，在「合作推理」的小組討論中我表現得更好。

*Not at all
true*

①

②

③

④

*Very
true*

⑤

7. Collaborative Reasoning discussions helped me think better much more than regular classroom discussions. 與傳統的課堂討論相比，「合作推理」的小組討論更能幫助我思考。

*Not at all
true*

①

②

③

④

*Very
true*

⑤

8. Collaborative Reasoning discussions helped me read English better much more than regular classroom discussions. 與傳統的課堂討論相比，「合作推理」的小組討論對我英文閱讀的幫助更大。

*Not at all
true*

①

②

③

④

*Very
true*

⑤

9. Collaborative Reasoning discussions helped me write English better much more than regular classroom discussions. 與傳統的課堂討論相比，「合作推理」的小組討論對我英文寫作的幫助更大。

*Not at all
true*

①

②

③

④

*Very
true*

⑤

10. Collaborative Reasoning discussions helped me speak English better much more than regular classroom discussions. 與傳統的課堂討論相比，「合作推理」的小組討論對我英文口說的幫助更大。

*Not at all
true*

①

②

③

④

*Very
true*

⑤

11. Collaborative Reasoning discussions helped my English listening skills much more than regular classroom discussions. 與傳統的課堂討論相比，「合作推理」的小組討論對我英文聽力的幫助更大。

*Not at all
true*

①

②

③

④

*Very
true*

⑤

12. Collaborative Reasoning discussions make me **feel better** / **happier** about school than regular classroom discussions.

與傳統的課堂討論相比，我覺得「合作推理」的小組討論讓我在學校更開心。

*Not at all
true*

①

②

③

④

*Very
true*

⑤

13. I learned from Collaborative Reasoning discussions that I need evidence to support my opinions.

我從「合作推理」的小組討論中學到用證據來支持我的論點。

*Not at all
true*

①

②

③

④

*Very
true*

⑤

14. In Collaborative Reasoning discussions, I used my personal experiences a lot to support my opinions.

在「合作推理」的小組討論中，我經常使用自己的親身經驗來說明、支持自己的論點。

*Not at all
true*

①

②

③

④

*Very
true*

⑤

15. In Collaborative Reasoning discussions, I often used other people's experiences (like your friends' stories, and some famous people's experiences) to support my opinions.

在「合作推理」的小組討論中，我經常使用別人的經歷（例如朋友或一些名人的經驗）來說明，支持自己的論點。

*Not at all
true*

①

②

③

④

*Very
true*

⑤

16. In Collaborative Reasoning discussions, I was able to think from different perspectives before taking my own position.

在「合作推理」的小組討論中，在確立自己的觀點前，我會先從不同的角度來分析問題。

*Not at all
true*

①

②

③

④

*Very
true*

⑤

17. When facing a dilemma in Collaborative Reasoning discussions, I often used the cost-and-benefit approach to form my choice.

我在「合作推理」的小組討論中遇到難題猶豫不決時，我經常使用利弊分析法來確定自己的選擇。

*Not at all
true*

①

②

③

④

*Very
true*

⑤

18. In most Collaborative Reasoning discussions, I feel it's easy to take my stance at the beginning.

在大部分「合作推理」的小組討論中，一開始時就有我自己的立場很容易。

*Not at all
true*

*Very
true*

①

②

③

④

⑤

19. In Collaborative Reasoning discussions, I was often persuaded by others' opinions and changed my own. 在「合作推理」的小組討論中，我經常被別人說服，進而改變了自己最初的立場。

*Not at all
true*

*Very
true*

①

②

③

④

⑤

20. After Collaborative Reasoning discussions, I felt I know my group members more.

在「合作推理」的小組討論結束後，我認為我更瞭解我的組員們。

*Not at all
true*

*Very
true*

①

②

③

④

⑤

21. What I like and did not like ...

Things that I like about Collaborative Reasoning discussions:

我喜歡「合作推理」的小組討論的地方

Things that I do **NOT** like about Collaborative Reasoning discussions:

我不喜歡「合作推理」的小組討論的地方

Things that I like about regular classroom discussions:

我喜歡傳統課堂討論的地方

Things that I do **NOT** like about regular classroom discussions:

我不喜歡傳統課堂討論的地方

Thank you for your comments :) 謝謝你寶貴的意見

APPENDIX R

DICTOGLOSS EVALUATION

Mark your options with an X. 請在您的選項上標記「X」

1. I like Dictogloss discussions much more than regular classroom discussions.
與傳統的課堂討論相比，我更喜歡「資訊綜合練習」的小組討論。

Not at all
True (完全不贊同) ① ② ③ ④ *true* (完全贊同) *Very*
⑤

2. I am much more excited about participating in Dictogloss discussions than regular classroom discussions.
與傳統的課堂討論相比，我對「資訊綜合練習」的小組討論更有興趣。

Not at all
true ① ② ③ ④ *Very*
true ⑤

3. I think it is much more important to let others know about my opinions and ideas in Dictogloss discussions than in regular classroom discussions. 與傳統的課堂討論相比，我認為在「資訊綜合練習」的小組討論中讓別人知道我的想法更重要。

Not at all
true ① ② ③ ④ *Very*
true ⑤

4. I talked and shared my ideas much more in Dictogloss discussions than in regular classroom discussion. 與傳統的課堂討論相比，我在「資訊綜合練習」的小組討論中更常表達自己的想法。

Not at all
true ① ② ③ ④ *Very*
true ⑤

5. I listened much more carefully to what others said in Dictogloss discussions than in regular classroom discussions.
與傳統的課堂討論相比，在「資訊綜合練習」的小組討論中我更努力傾聽別人的想法。

Not at all
true ① ② ③ ④ *Very*
true ⑤

6. I did much better in Dictogloss discussions than in regular classroom discussions.
與傳統的課堂討論相比，在「資訊綜合練習」的小組討論中我表現得更好。

Not at all
true ① ② ③ ④ *Very*
true ⑤

7. Dictogloss discussions helped me **think** better much more than regular classroom discussions.

與傳統的課堂討論相比，「資訊綜合練習」的小組討論更能幫助我思考。

*Not at all
true*

①

②

③

④

*Very
true*

⑤

8. Dictogloss discussions helped me **read** English better much more than regular classroom discussions.

與傳統的課堂討論相比，「資訊綜合練習」的小組討論對我英文閱讀的幫助更大。

*Not at all
true*

①

②

③

④

*Very
true*

⑤

9. Dictogloss discussions helped me **write** English better much more than regular classroom discussions.

與傳統的課堂討論相比，「資訊綜合練習」的小組討論對我英文寫作的幫助更大。

*Not at all
true*

①

②

③

④

*Very
true*

⑤

10. Dictogloss discussions helped me **speak** English better much more than regular classroom discussions. 與傳統的課堂討論相比，「資訊綜合練習」的小組討論對我英文口說的幫助更大。

*Not at all
true*

①

②

③

④

*Very
true*

⑤

11. Dictogloss discussions helped my English **listening skills** much more than regular classroom discussions. 與傳統的課堂討論相比，「資訊綜合練習」的小組討論對我英文聽力的幫助更大。

*Not at all
true*

①

②

③

④

*Very
true*

⑤

12. Dictogloss discussions make me **feel better** / **happier** about school than regular classroom discussions.

與傳統的課堂討論相比，我覺得「資訊綜合練習」的小組討論讓我在學校更開心。

*Not at all
true*

①

②

③

④

*Very
true*

⑤

13. *During Dictogloss discussions, I often discuss about the language to use for representing information when reconstructing the text with my group.*

我在「資訊綜合練習」重建文章時，會常常討論要用什麼樣的語言呈現我們想表達的資訊。

*Not at all
true*

①

②

③

④

*Very
true*

⑤

14. *I learned from Dictogloss about grammar after reconstructing the text in my group.*

我從「資訊綜合練習」重建文章的小組活動中學到文法。

*Not at all
true*

①

②

③

④

*Very
true*

⑤

15. *I learned from Dictogloss about grammar after the text comparison activity.*

我從「資訊綜合練習」文章對照的活動中學到文法。

*Not at all
true*

①

②

③

④

*Very
true*

⑤

16. *I learned from Dictogloss about vocabulary after reconstructing the text in my group.*

我從「資訊綜合練習」重建文章的小組活動中學到字彙。

*Not at all
true*

①

②

③

④

*Very
true*

⑤

17. *I learned from Dictogloss about vocabulary after the text comparison activity.*

我從「資訊綜合練習」文章對照的活動中學到字彙。

*Not at all
true*

①

②

③

④

*Very
true*

⑤

18. *In Dictogloss discussions, I used my own knowledge of English to reconstruct text.*

在「資訊綜合練習」的小組討論中，我會用我的英文知識來重建文章。

*Not at all
true*

①

②

③

④

*Very
true*

⑤

19. *In Dictogloss discussions, I used my group members' knowledge of English to reconstruct text.*

在「資訊綜合練習」的小組討論中，我會用其他小組成員的英文知識來重建文章。

*Not at all
true*

①

②

③

④

*Very
true*

⑤

20. *After Dictogloss discussions, I felt I know my group members more.*

在「資訊綜合練習」的小組討論結束後，我認為我更瞭解我的組員們。

*Not at all
true*

①

②

③

④

*Very
true*

⑤

21. What I like and did not like ...

Things that I like about Dictogloss discussions:

我喜歡「資訊綜合練習」的小組討論的地方

Things that I do **NOT** like about Dictogloss discussions:

我不喜歡「資訊綜合練習」的小組討論的地方

Things that I like about regular classroom discussions:

我喜歡傳統課堂討論的地方

Things that I do **NOT** like about regular classroom discussions:

我不喜歡傳統課堂討論的地方

Thank you for your comments :) 謝謝你寶貴的意見