REPAIR NEGOTIATION BY ENGLISH L2 LEARNERS

By

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ABSTRACT

REPAIR NEGOTIATION BY ENGLISH L2 LEARNERS

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It is widely accepted that L2 learners often face communication problems due to lack of competency in the target language and familiarity with its culture of origin. One way to resolve miscommunication problems is to seek clarification of the utterance; this process is called *repair negotiation* (Nakahama, Tyler, & van Lier. 2001)**.** Repair negotiation has been studied as a subset of Long's (1996) Interaction Hypothesis in second language acquisition (SLA). Existing research has solely focused on repair negotiation which is initiated by the native speaker or teacher rather than the L2 learner, thus resulting in *other-initiated repair* (OIR). However, it has also been found that an L2 learner can recognize mistakes while monitoring self utterance and initiate repair or self correction of the utterance, resulting in *self-initiated repair* (SIR). Unfortunately, little attention has been given to repair negotiation initiated by the L2 learner and the degree to which SIR facilitates L2 language development; even less attention has been given to combining two types of repair negotiation as well as measuring to what extent different types of NNS repair negotiation facilitates the development of the second language. Three research questions are explored in this dissertation project: (1) How do different types of tasks relate to the use of NNS's repair organization? (2) Does repair negotiation between L2 learners

lead to development on specific linguistic targets? (3) Does task type affect development of morpho-syntactic features?

In order to answer these questions, two experiments were conducted. In Experiment 1, to address the first research question, 22 high-beginning to low-advanced learners of English participated in a set of communicative tasks. The participants with the same proficiency levels were paired. The participants completed several tasks, including a one-way information gap task, a jigsaw task, and a decision-making task. The results showed that the production of SIR was elicited most frequently in the decision-making task whereas the production of OIR was elicited most frequently in the one-way information gap task. After the treatment, a diagnostic test was given to the subjects of Experiment 1 in order to determine the appropriate level of participants for Experiment 2. The results of the diagnostic test showed that the subjects from levels 3 and 4 were the most appropriate. Based on the results of Experiment 1, two types of tasks, a one-way information gap task and a decision-making task, and the intermediate level of participants were chosen to address the second and third research questions.

In response to the second and third research questions, Experiment 2 was conducted with intermediate L2 English learners (n=36) using a "pre-test/post-test/delayed post-test design." The linguistic targets chosen for were past tense and relative clauses (subject, object, and oblique relative clause) in the morpho-syntactic area. The results of this research suggest that past tense is learned more effectively than relative clause; repair negotiation between L2 learners is particularly beneficial in recognizing a past tense morpheme, leading to the learning of the morphology of past tense. Additionally, task types differently influenced the learning of the two linguistic targets; the one-way information gap task was more effective for learners in the short term than was the decision-making task. This study gives support for the Interaction Hypothesis concerning the use of repair negotiation between learners along with task-based instructions in the classroom.

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CHAPTER 1

INTRODUCTION

1.1 The Need for This Study

The purpose of this study is to examine and compare the effects of different types of repair negotiation on the linguistic knowledge of second language (L2) learners. L2 learners often face communication problems due to lack of competency in the target language. One way to resolve miscommunication is to seek clarification of the utterance; this process is called repair negotiation (Nakahama, Tyler, & van Lier. 2001).

Repair negotiations have been studied as a subset of Long's (1996) Interaction Hypothesis in second language acquisition (SLA), which states that "negotiation for meaning...that triggers interactional adjustments by the NS [native speaker] or more competent interlocutor, facilitates acquisition because it connects input ... and output in productive ways" (p. 452). Based on Long's hypothesis, most previous research has predominantly focused on the interaction between native speaker/teacher and non-native speaker/student, i.e. NS-NNS, and on L2 developmental stages of linguistic features developed through repair negotiation between NS-NNS (Iwashita 2003; Long 1981, 1983a, 1983b, 1996; Lyster & Ranta 1997; Mackey, Oliver, & Leeman 2003; McDonough 2007). These studies have inherently led to repair negotiation initiated by the native speaker, i.e. other-initiated repair (OIR)[1], in which a native speaker predominantly initiates when a non-native speaker produces a faulty utterance.

However, little consideration has been given to measuring whether and to what extent the repair negotiation between NNS-NNS leads to improving linguistic knowledge of the second

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[1] OIR refers to repair initiated by an interlocutor other than the trouble-source speaker.

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language. Even less attention has been given to *self-initiated repair* (SIR) in which the L2 learner recognizes their own mistake while self monitoring and initiates repair without the assistance of another.

By investigating repair negotiation between non-native speakers in a task-based language learning situation, this proposed study adds to the literature by providing insight into the effects of NNS-NNS repair negotiation on the development of second language skills. This study also aims to fill a gap in the literature by considering the effects of both OIR and SIR and by examining whether L2 learner development of certain linguistic features is positively affected by the different types of repair negotiation in NNS-NNS interactions. Specifically, this study examines the extent to which two morpho-syntactic features (past tense and relative clauses) are developed through NNS-NNS repair negotiation.

The significance of this study lies in the provision of empirical support for L2 development of linguistic knowledge through peer repair negotiation in second language acquisition (SLA). Moreover, considering both OIR and SIR contributes to an enhanced understanding of the cognitive ability of learners to provide comprehensible input, output, and feedback as well as notice the gap between new target features and their existing knowledge, skills which consequently lead to L2 linguistic development. Finally, this study has pedagogical implications for Teachers of English to Speakers of Other Languages (TESOL). Task-based repair negotiation supports the use of group and paired-work that provide an opportunity for learners to better understand newly introduced linguistic features.

1.2 The Significance of This Study

This research examines the extent to which certain linguistic features of second language (L2) learners are developed through the use of repair negotiation. More specifically, this research considers not only the effects of OIR (other-initiated repair) but also SIR (self-initiated repair), and it investigates whether the L2 development of the morpho-syntactic

features of past tense and relative clauses are positively affected by different types of repair negotiation.

This study considers less investigated areas of four theoretical issues. First, a gap in the literature exists with regard to L2 research on comparison of self- and other-initiated repair research. A variety of studies have shown that repair negotiation facilitates learners' second language acquisition by allowing learners to access comprehensible input, comprehensible output, modified output, and noticing the gap. However, such studies have predominantly concentrated on other-initiated repair rather than self- initiated repair (Foster & Ohta 2005; Long 1981, 1983a; Lyster & Ranta 1997; Suh 2007; Varonis & Gass 1985a). Specifically, these studies have focused on repair initiation by a NS interlocutor and repair completion by the L2 learner. In general, a NS interlocutor is the one who indicates the trouble source of the learner's utterance and the L2 learner is the one who responds with a repair. Consequently, less attention has been paid to learners' ability to recognize and self repair the trouble source of utterances.

It is true that, compared to native speakers, NNSs have more difficulty in recognizing the problem source of their utterances and in providing NS interlocutors with comprehensible output. However, as Suh (2007) explains, "NNSs still manage to handle these troubles through the deployment of a wide range of conversational devices" (p. 5). Therefore, this study helps to fill this gap by comparing repair initiation employed by NNSs. Combining learners' self-initiated repair with other-initiated repair reveals learners' cognitive ability to notice the gap between new target features and their existing knowledge, and to modify their output to the NNS interlocutor, which are skills that consequently lead to L2 development.

Second, a gap in the SLA literature exists with regard to NNS repair organization. Previous studies of repair organization were conducted between native speakers (Drew 1997; Fox & Jasperson 1995; Schegloff, Jefferson, & Sacks 1977) in the framework of conversation analysis (CA). Some studies of SLA indicate that repair negotiation between NSs-NNSs or teachers-NNSs are different from those between NNSs-NNSs in terms of amount of negotiating

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meaning, provision of feedback, and production of modified output (Garcia-Mayo & Pica 2000; Varonis & Gass 1985b). As of yet it is unanswered whether the organization of repair negotiation between non-native speakers is the same as that between native speakers and what role repair negotiation serves. Utilizing a quantitative approach in terms of measuring frequencies of repair organization as well as L2 development through a pre-test and a post-test, this study's contribution is to analyze repair organization with a quantitative approach.

Third, some empirical research shows indefinite findings with regard to L2 morphological development through interaction (Jeon 2007; Long, Inagaki, & Ortega 1998; Sato 1986). Sato (1986) examined the development of regular and irregular past tense of English and did not find learners' improvement of past tense development in the longitudinal study. Long et al. (1998) found different learning effects of two linguistic targets in L2 Spanish learners. No learning effect of object topicalization through recasts and models was found, whereas the learning effect of adverb placement occurred through recast and models. Jeon (2007) examined the development of two morpho-syntactic features, which were object relative clause and honorific subject –verb agreement, through interactions in Korean L2 learners. The results indicated that learners produced object relative clause accurately at a significantly higher rate than honorific subject-verb agreement. Jeon (2007) proposes that interaction does not offer the same benefits in all aspect of syntactic and morphological development. Therefore, the significance of this study lies in the provision of empirical support for L2 language development through repair negotiation in the new context of repair negotiation between NNS-NNS dyads.

Finally, this study also provides pedagogical implications for Teachers of English to Speakers of Other Languages (TESOL) and task-based language teaching (TBLT), which supports the use of group and paired-work to provide an opportunity for learners to better understand newly introduced linguistic features. Numerous studies have indicated that phonological and lexical features are more successfully developed than morphological features since phonological and lexical errors block successful communication and need to be promptly

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fixed through repair negotiation (Buckwalter 2001; DeKeyser 2005; Egi 2004; VanPatten 2004; Williams 1999). This study contributes to empirical support regarding the way in which morphological features can be developed between NNS-NNS in classroom tasks.

<div align="center">1.3 Research Questions</div>

The research questions of the present study are as follows:

1. Does a certain type of task result in different production of repair organization?

2. Does repair negotiation between L2 learners lead to development of linguistic targets? If so, are the morpho-syntactic feature of past tense and relative clauses developed effectively through repair negotiation?

3. Does type of task affect development of morpho-syntactic features? If so, to what extent are morpho-syntactic features of L2 learners developed from different types of tasks?

<div align="center">1.4 Understanding Repair</div>

The definitions of several key terms repeatedly used in this study are introduced as follows.

Definition of Repair

The study of repair was pioneered by Schegloff et al. (1977) in the research area of conversation analysis (CA). Repair is considered as a way to solve the problems of hearing, speaking, and understanding which can obstruct ongoing interactions (Schegloff et al., 1977). Repair has often been used interchangeably with correction of error. However, repair can be distinguished from correction. Repair is a broader concept than error. It is a treatment to solve the problems of hearing, speaking, and understanding which block ongoing interactions. In contrast, correction is a sub-type of repair which presupposes noticeable mistakes in the speaker's previous utterance (Schegloff et al., 1977). Example (1.1) shows an example of repair, but not correction.

<div align="center">5</div>

(1.1) Clacia: B't, a-another one theh wentuh school with me –
$\rightarrow^2$ wa:s a girl na:med uh, (0.7) ?W't th' hell wz er name. ?

→ Karen. Right. Karen.

(Schegloff et al., 1977, p.363)

In example Clacia is searching for someone's name that is not available to her at the moment but asks "W't th' hell wz er name?" to herself and remembers that her classmate's name is Karen. There is no noticeable error or correction of an error in Clacia's previous utterance; it is considered as repair. In this study, the term repair will be used rather than correction in order to grasp learners' monitoring of self utterances, such as word search and self-interrupting speech. When the trouble is fixed either by a speaker or a hearer, the interlocutors continue their ongoing conversation.

Unlike repair as defined in the CA context, the definition of repair in the SLA context has been examined from the perspective of correction of error under the context of an interlocutor's non-understanding of the utterance. Thus, the repair in the SLA context assumes that the errors are made by the NNS's, and then the repair is initiated by the NSs. Suh (2007) mentioned that "consequently, the speaker who provides the correction is almost always an NS interlocutor. The cases where NNSs correct NSs are never an issue in SLA research since NSs hardly make linguistic errors" (p. 53).

However, focusing on the correction of error adds strength to the misconception that non-native speakers (NNSs) create the trouble source due to their lack of L2 competency even though this may not always be true. Consider the conversation in (1.2).

(1.2)   1   NS: What do you want on your pizza?

2   NNS:→ Pardon?

3   NS: Do you want sausage or pepperoni?

(Buckwalter 2001, p. 381)

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[2] The first arrow indicates repair-initiation and completion.

As Buckwalter (2001) noted, SLA research naturally assumes that NNS does not understand what NS says due to the lack of L2 competency and thus ask questions in line 2. NNS may simply not have heard the native speaker's utterance rather than indicating NS's errors. If that is the case, the utterance of NNS is considered to be a repair since the utterance of NS does not include a noticeable error in line 1.The utterance of NNS is not error, though it is still considered repair[3]. Thus, since correction of error is not the same as repair, merely focusing on the correction of error may not completely reflect the repair strategies employed by NNSs (p.381).

The indication of non-understanding of a speaker's utterance is expressed by several lexical means. It could be expressed such as pardon, *what*?, wh-questions word, a question word with a partial repeat, partial repetition of trouble source turn, and *you mean* plus possible candidate of understanding (Schegloff et al., 1977). Among these strategies, Foster & Ohta (2005) called for careful attention to the strategy of partial repetition of trouble source since partial repetition does not necessarily involve repair. Specifically, partially repeated questions do not necessarily result in initiation of repair. The example seems to show that there is a communication problem between English L2 learners.

> (1.3) 1   C: What do you like in London?
>
> 2   D: →London?
>
> (Foster & Ohta 2005, p. 412)

In (1.3), speaker D seems to initiate a repair; D does not seem to understand C's utterance and attempts to clarify the utterance by repeating the word. However, according to Foster & Ohta (2005), a broader context is needed to determine whether D initiates the repair in response to a trouble source in the previous utterance. They provide broader utterances as shown below.

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[3] In CA, it is not important in this repair sequences whether NNS truly does not understand or may simply not have heard it.

(1.4)   1   C: What do you like in London?

        2   D: → London? (1.0) Ah, there are a lot of things to do here

        3   C: A lot?

        4   D: there are a lot of things to do in your free time. A lot of shops, and

                you can go bowling, skating (1.0) there are cinemas. Where I live, no.

                (adapted from Foster & Ohta 2005, p.413)

As example (1.4) shows, the context indicates that speaker D does not have a communication problem. In fact, the purpose of D's initiation of repair is not to correct C's error but rather shows "interest or involvement as conversationalists" (Foster & Ohta 2005, p. 413). The examples above show that repair initiation does not necessarily arise due to the learner's lack of proficiency of English nor is it used to correct the interlocutor's error. Moreover, the function of D's utterance in line 2 shows involvement in rather than problems or trouble in interaction; The example in (1.4) will not be considered as repair or correction because the repeated question does not indicate the mistake of C's utterance but does show interest of C's utterance.

Thus, in order to fully grasp learners' repair strategies arising from not only correction of error but also hearing, speaking, and understanding the interaction, the definition of repair delineated by Schegloff et al. (1977) will be adopted for this study. That is, repair, in this study, is considered as the treatment of problems or troubles in speaking, hearing, and understanding in interaction. Moreover, the function provided by Foster & Ohta (2005) will also be considered; the partial repetition of an utterance will be considered as repair only when it prevents the interaction in progress.

Types of Repair Organization

Repair organization has been examined in Conversation Analysis (CA) to understand the structure of native-speakers' interaction. The structure of interaction has been described more in terms of who initiates repair and who completes it. Schegloff et al. (1977) gave the four possible sequences of repair organization shown below.

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a. self-initiated and self-completed repair (SISR)

b. self-initiated and other-completed repair (SIOR)

c. other-initiated and self-completed repair (OISR)

d. other-initiated and other-completed repair (OIOR)

Self-Initiated Repair (SIR)

Self-Initiated Repair is repair initiated by speaker who uttered the trouble-source. Self-initiated repair is further divided into two types in terms of who completes repair. The repair can be completed by the speaker self (e.g., self-initiated self-repair) or by interlocutor other than the speaker (e.g., self-initiated other-repair) (Schegloff et al., 1977).

First, S*elf-initiated and self-completed repair* (SISR) occurs when the source of trouble is recognized by a speaker who then repairs the trouble on their own.

(1.5) Self-initiated and self-completed repair (SISR)

N: She has given me a:ll the people that

→were go:ne this yea:r

→I mean this quarter y'//know

J: Yeah

(Schegloff et al., 1977, p. 364)

In (1.5), N recognizes the mistake of "this yea:r" and feels the need to repair. Right after uttering "this yea:r", N initiates and completes it by saying "I mean this quarter y'know." Second, speakers sometimes have situations where they need to initiate repair but cannot complete repair since they cannot retrieve certain words or utterances needed at that moment. This situation leads speakers to ask for an answer from the interlocutor. The repair organization coming from this situation is called *self-initiated and other-completed repair* (SIOR).

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(1.6) Self-initiated and other-completed repair (SIOR)

B:→ He had dis uh Mistuh-W whatever k- I can't think of his first name,

Watts on, the one that wrote// that piece.

A:→ Dan Watts.

(Schegloff et al., 1977, p. 364)

In (1.6), B tries to remember someone's name but does not remember the first name at that moment. Then, B initiates repair by asking "Watts on, the one that wrote that piece" to the interlocutor A. A completes the repair by giving someone's full name. Therefore, B initiates repair by asking a question to the interlocutor and A completes by giving a response to the question. Therefore, SIOR takes place when the source of trouble is recognized by a speaker but the hearer repairs the utterance at the speaker's trouble. Shehadeh (1999) point outs that self-initiated repair (self-initiated clarification attempts) facilitates L2 learning in that it provides a way for "NNSs to modify their output toward comprehensibility" (p. 637).

Other-initiated Repair (OIR)

Other-initiated repair is repair initiated by interlocutor who recognizes some problems in the speaker's utterance. Other-initiated repair is further divided into two types in terms of who completes repair. Other-initiated repair can be completed by the speaker (e.g., other-initiated self-repair) or by the interlocutor (e.g., other-initiated other-repair) (Schegloff et al., 1977). First, *Other-initiated and self-completed repair* (OISR) occurs when interlocutor asks a question due to non-understanding of a speaker's utterance and the speaker completes it.

(1.7) Other-initiated and self-completed repair (OISR)

Ken: Is Al here today?

Dan: Yeah.

(2.0)[4]

Roger: → He is? Hh eh heh

Dan: → Well he was.

(Schegloff et al., 1977, p. 364)

In (1.7), Roger assumes that Al is not here today but Dan's affirmative answer "Yeah" makes Roger surprised and not able to understand completely. Roger initiates repair by asking a question and Dan completes repair by answering it. Therefore, OISR takes place when the hearer indicates a lack of understanding and initiates a repair, and the speaker repairs the trouble source. Second, o*ther-initiated and other-completed repair* (OIOR) occurs when repair is both initiated and completed by the interlocutor.

(1.8) Other-initiated and other-completed repair (OSOR)

B: Where didyu play ba:sk// etbaw

A: (The) Gy:m

B: in the gy:m?

A: Yea:h Like group therapy. Yuh know=

B: [oh;;:.

A: → =[half the group that we had la:s term wz there en we jus playing around:d

B:→ Uh-fooling around

A: eh-yeah-

(Schegloff et al., 1977, p.365)

In (1.8), A utters "playing around:d" but may originally intend to say "fooling around" since A finally accepts B's repair. Following A's utterance, B recognizes the error made by A and

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[4] Single parentheses enclosing numbers indicate a pause in conversation. The number show pause duration in tenths of seconds.

initiates and completes in a single turn. Therefore, OIOR occurs when the interlocutor identifies the source of trouble and repairs it. Drawing upon this preference, this study examines the types and frequency distributions of repair initiation employed by NNSs.

Repair Negotiation

Repair negotiation is a process to seek clarification of the utterance in order to resolve communication problems. Repair negotiation is completed when interactants reach a clear understanding. The scope of repair negotiation in this study includes self-initiated repair as well as other-initiated repair.

<u>1.5 Overview of the Dissertation</u>

This section presents the overview of the current study. Chapter 2 reviews relevant previous studies. Chapter 2 discusses repair organization from second language acquisition, repair strategies, and effectiveness of repair negotiation. Also, Chapter 2 introduces research hypotheses and illustrates how the research was design and operationalized. Since the current research is composed of Experiment 1, Diagnostic test, and Experiment 2, the analyses and results are illustrated separately in each chapter. Chapter 3 presents the analysis and results of relationship between task type and repair organization in Experiment 1. Chapter 4 concerns the results of the diagnostic tests. Chapter 5 examines the language development through repair negotiation between L2 learners of English in Experiment 2. Chapter 6 provides discussions and conclusions of the research as well as the theoretical implication, limitations of this study, and suggestions of future study.

CHAPTER 2

REVIEW OF THE LITERATURE

The purpose of the study is to investigate repair negotiation (self and other-repair) and to what extent repair negotiation between L2 learners leads to L2 morpho-syntactic development. In Chapter 1 the definition of repair and repair organization was reviewed with a call for awareness of both repair and correction of error (Schegloff et al., 1977; Hall 2007). This chapter is composed of three separate bodies of literature which are equally relevant for the goal of this study but are not generally considered as being related. This chapter begins with an introduction of the studies of repair negotiation in SLA, and section 2.2 discusses the role of repair negotiation in SLA. Section 2.3 discusses the linguistic targets that benefit from repair negotiation. Section 2.4 presents an overview of the current study. Section 2.5 provides a summary.

2.1 Studies on Repair Negotiation in SLA

The previous research on repair organization has mostly examined interactions between native-speakers (NS-NS) to understand the nature of conversation within Conversation Analysis (CA). However, since the seminal work of Schegloff et al. (1977), the study of repair negotiation has also been applied to the interactions evoked by non-native speakers (NNS-NS or NNS-teacher) in the classroom (Johnson 1995; Jung 1999; Kasper 1985; McHoul 1990; Seedhouse 1999) or in an experimental setting (Adams 2004, 2007; Adams et al., 2010). The following section discusses previous studies on repair and repair negotiation evoked by non-native speakers.

2.1.1. Repair in Second Language Acquisition Context

As discussed before, though repair has often been discussed in the second language acquisition literature, it has been used interchangeably with correction of errors or error

feedback in the second language classroom. In fact, Lyster and Ranta (1997) define repair as "correct reformulation of an error as uttered in a single student turn and not to the sequence of turns resulting in the correct reformulation; nor does it refer to self-initiated repair" (p. 49). In other words, they consider repair as correct reformulation of an error in a very limited fashion such that repair is a student's correct reformulation of an erroneous sentence resulting from a teacher's initiation of repair. Moreover, they do not consider the initiator of repair, but rather consider the completion of repair by students as a response to the teacher's feedback. Their study focuses on teacher-initiated repair, which is a type of other-initiated repair (OIR).

However, Varonis and Gass (1985b) considered repair as sequence of turns. The sequence is composed of a "trigger" or "trouble source" (T) (the utterance or a part of the utterance which causes the trouble or misunderstanding), an "indicator" (I) (something which shows misunderstanding by the speaker or the listener), a "response" (R), and a "reaction to response" (RR). However, a trigger does not appear unless the interlocutor initiates repair since it is always inferred by existence of an indicator. That is, when the interlocutor does not indicate a trouble source of the speaker's utterance, the trigger is ignored and does not seem to exist in utterances. Consequently, Varonis and Gass (1985b)'s model intrinsically considers other-initiated repair (OIR), in which the trouble source is indicated by the interlocutor.

However, in fact, a trigger appears only when the speaker can indicate the problem by repairing his/her previous utterance (self-initiated repair). Shehadeh (2001) expands repair negotiation including not only other-initiated repair (OIR) but also self-initiated repair (SIR) to evaluate whether repair initiation provides opportunity for learners to modify output on the basis of Varonis and Gass (1985b)'s model. Figure 2.1 provides a model for self-initiated and other-initiated modified output.
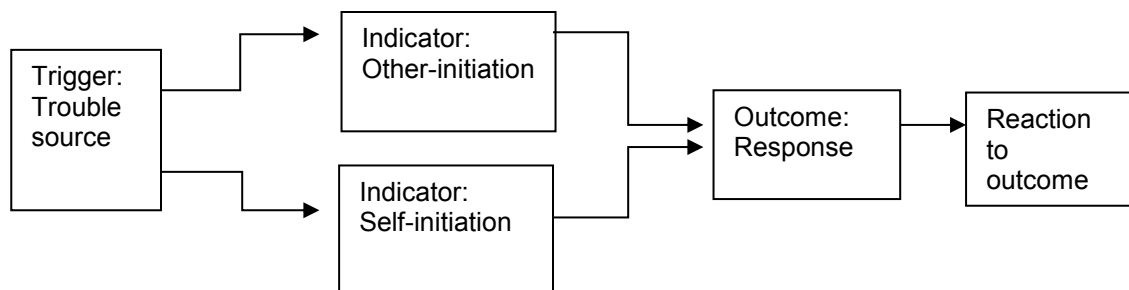
Figure 2.1. Model for Self-initiated and Other-initiated Modified Output (Shehadeh 2001, p.436)

Taking together the concepts of repair in CA and SLA, Schegloff et al. (1977) and Varonis and Gass (1985b) use different terminology to describe the same phenomenon. A parallel in the analysis of repair organization is found between these two approaches. In other words, Indicator (I) corresponds to initiation of repair and outcome (O) corresponds to completion of repair in CA. Suh (2007) shows the comparison of analysis between CA proposed by Schegloff et al. (1977) and SLA proposed by Varonis and Gass (1985b). For example,

(2.1)　　　　　CA　　　　V&G
　　　　　　　1 TS[5]　　　Trigger　　　My father now is retire.

　　　　　　　2 OI[6]　　　Indicator　　retire?

　　　　　　　3 SR[7]　　　Response　　Yes

　　　　　　　4 Response　Reaction　　Oh yea

　　　　　　(Varonis & Gass 1985b, p 77; Suh 2007, p. 34)

As seen above, the trigger "retire" in line 1 corresponds to "trouble source (TS)", the indicator "retire?" corresponds to other-initiation of repair (OI), and response "yes" corresponds to self-completed repair (SR) by acknowledging the previous utterance. The sequences occurs most frequently in classrooms since other-initiated and self-completed repair (OISR) results from correction of error by a classroom teacher or other interlocutors consequently and the

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[5] TS trouble source
[6] Other-initiated repair
[7] Self-completed repair

student's completion of repair. Indeed, most second language studies predominantly consider other-initiated self-completed repair in the classroom (Foster & Ohta 2005; Long 1981, 1983a; Lyster & Ranta 1997; Seong 2004; Suh 2007; Varonis & Gass 1985a).

The repair negotiation has been considered being facilitative in that it involves the process of providing comprehensible input and producing comprehensible output. Specifically, Long (1996) viewed the negotiation for meaning triggering interactional adjustment are beneficial for learners in that compressible input produced by NS or more competent speaker allows NNS to understand the target language better, which leads to language learning. In other words, process that involves in interaction allows learners to receive comprehensible input, to use cognitive abilities to connect the input they receive and output they produce. The Interaction Hypothesis claims that interaction provides not only a context for learners to practice what they have learns but also one in which to learn the language.

Pica et al. (1989, cited in Shehadeh 1999) argues that "although…research has focused mainly on the way in which negotiation interaction with an interlocutor helps the learner to understand unfamiliar L2 input, we believe that it is also through negotiation that learners gain opportunities to attempt production of new L2 words and grammatical structures as well" (p. 65). Similarly, Swain (1985, 1995, 1998)'s Output hypothesis emphasizes the importance of not only comprehensible input but also comprehensible output (CO). Swain (1995) explains that "output pushes learners to process language more deeply (with more mental effort) than does input" (Swain 1995, p.126). Swain (1985, 1995, 1998) explains the function of output in relation to second language learning. The functions of output allow learners to notice the gap between the target language and their interlanguage, test out their hypothesis, and reflect on the target language form. Thus, as a type of input and output, repair negotiation facilitates L2 learning by providing a setting in which learners generate more comprehensible input for the interlocutor and produce comprehensible output, which enables learners to reprocess and modify their interlanguage system (Shehadeh 1999). Shehadeh (1999) provides a link between negotiation

of meaning, comprehensible input, comprehensible output, and language learning as shown in

Figure 2.2.

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        ┌─────────────────────────────┐
        │  Communication that involves │
        │    negotiation of meaning    │
        └─────────────────────────────┘
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Figure 2.2. Link between Negotiation of Meaning, Comprehensible Input, Comprehensible Output, and Language Learning (Shehadeh 1999, p.664)

As Figure 2.2 illustrates, repair negotiation between NNSs facilitates language learning such that repair negotiation provides an opportunity for comprehensible input so that the speakers can adjust by themselves their utterances for their interlocutors; thus also generating an opportunity for comprehensible output resulting from their interlocutors' other-initiated repair.

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of meaning, comprehensible input, comprehensible output, and language learning as shown in

Figure 2.2.

Communication that involves negotiation of meaning

- Opportunity for less competent NNSs to provide feedback on their current comprehension ability in the L2, enabling their interlocutors to make the necessary simplifications and adjustments to their production.
  → Modifying input to NNSs *(provides)*
  → Comprehensible Input

- Opportunity for NNSs to expand their current interlanguage capacity in response to other-initiated clarification requests and self-initiated clarification attempts, to test out hypotheses about the L2, and to move from a purely semantic analysis of the L2 to a more syntactic analysis of it
  → Modifying output by NNSs *(generates)*
  → Comprehensible Output

→ **Language Learning**

Figure 2.2. Link between Negotiation of Meaning, Comprehensible Input, Comprehensible Output, and Language Learning (Shehadeh 1999, p.664)

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2.1.2. Repair Negotiation in Teacher-Student Interaction

Most research on repair has compared the organization of repair in the L2 classroom to that in routine conversation. McHoul (1990) examined the repair organization in English high-school geography classrooms in Australia. He found that the repair organization in the L2 classroom differed from that in mundane conversation in that other-initiated repair (OIR) was more predominant in the L2 classroom than self-initiated repair (SIR). In the classroom, the teacher generally initiates the repair, and the students complete the repair. McHoul further proposes that teacher initiation of repair (OI) is the teacher's pedagogical technique, which provides clues, rather than directly providing correct answers, so that students get the right answers on their own. Likewise, Johnson (1995) claims that "the extent to which the teacher controls the patterns of communication may have been the result of the pedagogical purpose of the lesson" (p. 108).

In addition to teachers' pedagogical technique, some studies confirmed that the contexts in which certain types of activities were carried out affected repair organization (Jung 1999; Kasper 1985; Seedhouse 1999; Van Lier 1988). Kasper (1985) initiated the study of how activities affect preferences for repair organization in English as foreign language (EFL) context at a Danish gymnasium. The lessons in her study were divided into two units: a language-centered phase and a content-centered phase. In both the language-centered phase and the content-centered phase, teachers used SIR sequences more frequently when they felt that explanation of vocabulary was need. In contrast, students rarely produced SIR sequences in their utterance, but students' trouble source were typically initiated by the teacher, producing OIR sequences.

Jung (1999) also investigated repair sequences in terms of participant frameworks in an L2 classroom. She divided the participation framework into role-play activities and teacher-centered activities. In the role-play activities, both SIR and OIR sequences occur frequently. The use of OIR was used as delegated repair in both role-play activities and in teacher-centered

activities. Moreover, Jung (1999) explains the role of SIR (student-initiated teacher-completed repair) as "the students' high involvement and receptive listenership in the discourse" and considers it as "team talk" and a way to show cooperation and collaboration (p. 159).

In the same vein, Seedhouse (1999) showed that pedagogical focus also affects the organization of repair. He categorized three specific contexts by pedagogical focus in the L2 classroom: form-and-accuracy contexts, meaning-and-fluency contexts, and task-oriented contexts. In the form-and-accuracy context, a repair occurred when the teacher assumed that an answer by a learner did not match the teacher's expected answer. The pedagogical goal of the meaning-and-fluency context is to enhance the learners' ability to communicate effectively. Thus, the focus of the context is fluency rather than grammatical accuracy. In the meaning-and-fluency context, OIR occurs frequently but is initiated only when an error blocks communication. In the task-oriented context, the teacher assigns some tasks to the learners and asks them to complete the task by negotiating the meaning. In this context, both OIR and SIR sequences take place but SIR sequences are more common than OIR sequences. The studies mentioned above indicate that the teaching goal or activity type is an important factor to determine repair patterns.

2.1.3. A Factor That Influences Repair Negotiation: Different Types of Tasks

As mentioned in the previous section, the teaching goal and activity type are important variables that influence repair negotiation. In particular, activity type is closely related to this study since this study investigates non-native speakers' repair negotiation during three different types of task. However, very little research has been conducted regarding task types and repair negotiation. Thus, it is necessary to examine the characteristics of different tasks. This section details different types of task in terms of interactant-relationship, interaction-requirement, goal-orientation, and outcome options.

Pica, Kanagy, & Falodun (1993) propose that closed-ended, problem-solving, and information-gap tasks generate more negotiation since the tasks require relatively more

accurate information than open-ended discussion. They categorize the tasks in terms of interactant-relationship, interaction-requirement, goal-orientation, and outcome-option.

1. Interactant-relationship is related to the notion of information-holder and information-requester.

2. Interaction-requirement relates to whether the information is optionally or obligatorily requested or supplied.

3. Goal-orientation relates to whether the interactants have convergent goals or divergent goals. For example, solving a problem or making a decision has the characteristic of a convergent goal, whereas exchanging opinions has the characteristic of a divergent goal.

4. Outcome options relate to whether only one acceptable outcome or more than one outcome is acceptable.

Pica et al. (1993) categorize five different tasks: jigsaw, info-gap, problem-solving, decision-making, and opinion-exchange task. Table 2.1 shows how the different types of tasks can be distinguished in terms of the four categories.

Table 2.1. Different Types of Tasks (Pica et al., 1993, p. 14-15)

Types of tasks	Interactant relationship	Interaction requirement	Goal orientation	Outcome option
Jigsaw	Each interactant holds a different portion of information needed to complete the task.	Each interactant is required to request and supply information.	Interactants have convergent goals	Only one acceptable outcome is possible
Info-gap	One interactant holds information.	One interactant is required to request information; the other is required to supply it.	Interactants have convergent goals	Only one acceptable outcome is possible.
Problem-solving	Each interactant has access to information.	A two-way exchange is possible but not required; one interactant may do all the work.	Interactants have convergent goals.	Only one acceptable outcome is possible.
Decision-making	Each interactant has access to information.	A two-way exchange is possible but not required; one interactant may do all the work	Interactants have convergent goals.	More than one outcome is possible
Opinion-exchange	Each interactant has access to information.	A two-way exchange is possible but not required; one interactant may do all the work.	Interactants have related but divergent goals.	More than one outcome is possible.

Pica et al. (1993) maintained that information-gap and jigsaw tasks generate the greatest opportunity to negotiate meaning when communication breaks down in that one of the participants initiates repair and the other should complete the repair. In contrast, opinion-exchange tasks generate the least opportunity to negotiate meaning in that participants are not equally involved in the interaction; one participant may dominate the conversation while the other participants may agree with it; they may complete the interaction without sharing opinions sufficiently.

However, some mixed results on the effectiveness of type of task were found. For example, Slimani-Rolls (2005) found that a jigsaw task generates negotiation of meaning the most, decision-making task the second, and one-way information gap task the least, but Gass, Mackey, & Ross-Feldman (2005) showed that more negotiation of meaning occurs in information gap tasks (e.g., picture difference task and map task) than in a decision-making task, and no significant difference between the picture difference task and map task. Ross-Feldman (2007) found that a decision-making task elicits the negotiation of meaning the most, a picture-placement the second, and a picture difference the least. Moreover, Nakahama et al. (2001) compared the different activities of unstructured conversation and information gap task between NS-NS, NNS-NNS, and NS-NNS to see how meaning is negotiated. They suggested that conversational interaction has the potential to offer substantial learning opportunities although fewer negotiation sequences take place in conversation than in an information-gap task. Their NNS participants stated that they felt more challenged in unstructured interactions because they paid attention to the whole conversation whereas they focused more on lexical items in the information gap task.

The findings mentioned in the preceding paragraph suggest that linguistic targets, interaction requirements, and goals of tasks are important elements that influence repair negotiation. From those findings, it can be concluded that different task types hold different advantages for learners. A task with a convergent goal and local linguistic targets (phoneme and morpho-syntactic features) generates more opportunities for the negotiation of meaning than an open-ended task. However, although fewer opportunities for the negotiation of meaning in a task with divergent goal and an open-ended task were generated, the task required learners to understand overall contents.

Although the research mentioned above has indicated which task types are more effective for learners, very little research has addressed the relationship between repair organization and types of tasks. For example, an information-gap task leads to production of

other-initiated repair since only one interactant holds the information and the other interactant should request information. The types of tasks seem to be an important variable since there seems to be a difference between repair organization and task type. Therefore, considering this issue, this study aims to clarify the relationship between task types and repair organization by choosing different types of tasks.

<div align="center">2.2 The Rose of Repair Negotiation in SLA</div>

Repair negotiation is SLA has been discussed within the framework of Long (1996)'s Interaction Hypothesis. The Interaction Hypothesis was started by Long's looking at the interaction between NS-NNS dyads and NNS-NNS dyads in 1980s. He found that NS-NNS interaction involves more interactions than NS-NS because NS-NNS dyads had more misunderstandings and thus required more negotiation and modification in interaction to resolve the problems, proposing the Interaction Hypothesis (1980, 1982, 1983). He further reformulated the hypothesis and updated the Interaction Hypothesis in 1996. The Interaction Hypothesis (1996) proposes that interaction provides learners with access to comprehensible input, opportunities for output, and implicit correction of errors in the form of negative feedback during the process of negotiation for meaning. Negotiation for meaning is considered facilitative acquisition since it involves NS or more competent interlocutor's interactional adjustments and those interaction adjustment connect input, internal learner capacities, and output in productive ways (Long 1996, p. 414, 451-452). Given that repair negotiation involves the negotiation and modification in interaction, the notion of repair negotiation can be explained within Long's Interaction Hypothesis.

Since 1990s, expanding on Long's Interaction Hypothesis, numerous studies have shown that learners benefit from engaging in repair in interaction, particularly a learner's immediate modification when assisted by an interlocutor (Doughty & Varela 1998; Ellis 2007; Ellis et al., 2006; Iwashita 2003; Jeon 2004; Long 1981, 1983a, 1983b, 1996; Lyster & Ranta 1997; Mackey & Philp 1998; McDonough 2007). The following sections review the studies of the

L2 development supporting the Interaction Hypothesis. The studies of language development through interaction are separated by the contexts, NS-NNS repair negotiation and NNS-NNS repair negotiation.

2.2.1. NS-NNS repair negotiation

Many researchers have studied the effectiveness of repair negotiation between native speaker (NS) and non-native speaker (NNS), measuring the L2 development through repair negotiation (Ellis & He 1999; Ellis, Tanaka, & Yamazaki 1994; Long 1996; Loschky 1994; Lyster & Ranta 1997; Mackey &Philp 1998). For example, Loschky (1994) investigated whether L2 comprehension of Japanese locative prepositions are facilitated by negotiating for meaning. His experimental study had three groups: the control group with unmodified output and no interaction, the second group with premodified input but no interaction, and the third group with unmodified input but with interaction. He found that the group who had an opportunity to interact resulted in higher level of comprehension. Some positive results were also found in other comparable studies. Ellis et al. (1994) found a positive effect on new English vocabulary learning through interaction. Moreover, Ellis and He (1999) examined the effects of premodified input without interaction, interactionally modified input, and modified output on L2 English words. Premodified input and interactionally modified input groups involved interaction between NS-NNS whereas modified output group involved interaction between NNS-NNS. The results of their study show that the vocabulary learning was found to be the most effective in the modified output group than the premodified input and interactionally modified input group. Thus, Ellis and He (1999) propose that interaction between learners with a symmetrical relationship created better opportunity for incidental vocabulary learning than the interaction by teacher controlled condition.

More recently, research has been extended to the effectiveness of different types of feedback such as recast, negotiation, metalinguistic feedback, clarification requests, repetition and investigated which types of feedback are more beneficial for learners (Ellis 2007; Ellis,

Loewen, & Erlam 2006; Iwashita 2003). Specifically, Ellis et al. (2006) examined to what extent recast and metalinguistic feedback improve English past tense acquisition for L2 English learners and found that the group receiving metalinguistic feedback scored higher than the group receiving recast in a delayed post-test.

Iwashita (2003) examined the effects of five types of interactional moves, grouped as negative feedback (e.g., recast and negotiation move) and positive evidence (e.g., completion model, translation model, and simple model), in acquiring Japanese locative-initial construction and a verb morpheme in a Japanese as foreign language context. The results showed that only the learners at the above-average level benefited from positive evidence whereas implicit negative feedback (e.g., recast and negotiation move) was beneficial to all of the learners regardless of their proficiency levels. These conversation feedbacks, as a type of other-initiated repair, show that the effects of other-initiated repair are not equally beneficial. Instead, certain types of other-initiated repair are more beneficial than the others; explicit other-initiated repair helped learners attend to the form more successfully.

2.2.2 NNS-NNS repair negotiation

A number of empirical studies have provided direct and indirect evidence that repair negotiation in L2 promotes second language development (Adams 2004, 2007, 2011; McDonough 2004, 2007; Nassaji 2011; Shehadeh 2001; Varonis & Gass 1985b). For example, Adams (2004) investigated whether non-native speakers' interaction could lead to L2 development. In her study, intermediate- level adult L2 English learners were divided into treatment and control groups. The participants in the treatment group engaged in task-based activities targeting questions, past tense, and locatives while the participants in the control group joined the regular class. The participants in the treatment group were paired and interacted with another non-native speaker. Her study used a pre-test, post-test, and delayed post-test design to measure whether the learners could benefit from interaction with their partners. The results of her study showed that learners could develop their knowledge of

question formation but not in other targets. McDonough (2004) examined whether negative feedback (e.g., recast, clarification request, and explicit correction) to the learners in pair and small groups could improve their production of conditional clauses in an EFL context. Using a pre-test, post-test, and delayed posttest design, her study showed that the learners who had more negative feedback and modified output showed improvement in their production of conditional clauses than the learners who had a less negative feedback and modified output.

In addition to L2 language development through repair negotiation, Shehadeh (2001) investigated to what extent NNS's repair negotiation, including self-initiated and other-initiated repair provides opportunities for learners to modify their output during three different types of tasks. His study shows that the learners' modified output came from self-initiated repair more often than other-initiated repair (OIR). This tendency was also found in McDonough (2004)'s study. In other words, these studies indicated that SIR may provide more opportunities for learners to modify their output and may play an important role in acquiring second language. Moreover, Shehadeh illustrated the importance of modified output in that it equips learners to notice the gap between their interlanguage and the target language, formulate and test hypotheses about the target language, and move from semantic analysis to syntactic analysis (p.450). Overall, Shehadah conclude "if NNSs' production of modified output is integral to successful L2 learning, both self-initiations and other-initiations matter for L2 learning" (p. 451). Therefore, unlike previous studies that predominantly focused on other-initiated repair, this study assumed that the consideration of other-initiated repair and also self-initiated repair is needed to better reflect the overall repair negotiations employed by NNS-NNS.

2.3 Linguistic targets that benefit from repair negotiation

Recently, some studies have compared the effectiveness of certain linguistic targets and suggested that certain specific linguistic targets are more effectively developed than other linguistic areas through repair negotiations (Adams 2004, 2007; Jeon 2004, 2007). Specifically, phonological and lexical errors are better developed than morphological errors through repair

negotiation since they cause a communication breakdown more directly, allowing learners to recognize their errors, whereas erroneous use of morphological items makes learners still understandable in interactions, allowing learners to fail to recognize their morpho-syntactic errors (Buckwalter 2001; DeKeyser 2005; Egi 2004; VanPatten 2004; Williams 1999). DeKeyser (2005) suggested that this may be due to the degree of complexity of form-meaning relationship affects ease/difficulty of acquisition. The clearer the form-meaning relationship the easier L2 learners acquire a certain linguistic item. For instance, morphological information (e.g. inflections such as *-s*, *-ed*, *-ing*) does not represent a clear relationship between form and meaning since its semantic meaning can be expressed through other lexical items (yesterday, right now, tomorrow). Similarly, VanPatten (2004) suggested that "learners are more likely to process nonredundant meaningful grammatical form before they process redundant meaningful forms" (p.11). That is, morphological information such as verb inflection that can be labeled as [-semantic information] and [+redundant], is difficult to process. In sum, redundancy of morphological information makes it difficult for learners to gain mastery, requiring learners to continuously restructure their interlanguage system.

However, despite the difficulty in learning of morpho-syntactic structures, some mixed findings were found in previous research. Sato (1986) investigated whether two Vietnamese speakers of English developed English past tense morphology from feedback by NS in a natural setting and did not find a positive result of English past tense learning. However, other studies have found positive results. For example, Nobuyoshi and Ellis (1993)'s study found that learners in the clarification request group gained accuracy in production of past tense whereas the learners who did not receive feedback did not gain accuracy. The inconsistency of findings about development of morpho-syntactic structures suggests a need for further research in this area. Thus, the present study examines to what extent morpho-syntactic structures can be developed through repair negotiation between NNS-NNS.

2.3.1 Differential effect of feedback and L2 development

The learning of L2 morpho-syntactic development has been discussed in the context of different types of conversational feedback (e.g., explicit and implicit feedback)   between NS-NNS in ESL or foreign language contexts. Most studies have focused on what types of feedback lead to better development in learning L2 morpho-syntactic structures. The linguistic targets explored were English past tense, English question forms, adjective comparative –*er* (Ellis 2007; Iwashita 2003; Jeon 2007; Mackey 1999; Mackey 2006; McDonough 2007; Sato 1986). For example, Ellis (2007) presented the differential effect of feedback (e.g., metalinguistic feedback and recast) in acquisition of English in lower-intermediate English learners in New Zealand. He found that recasts did not have differential effects on acquiring these two linguistic targets and the gains of the two linguistic targets were slight. In contrast, metalinguistic feedback had differential effects; it was more effective in acquiring comparative –*er* than –*ed*. His study showed that "the metalinguistic feedback…appeared to be salient enough to learners to assist acquisition" (p. 358).

Iwashita (2003) examined the effects of five types of interactional moves including negative feedback (e.g., recast and negotiation move) and positive evidence (e.g., completion model, translation model, and simple model) in acquiring Japanese locative-initial construction and a verb morpheme in a Japanese as foreign language context. Fifty five dyads of NS-NNS completed one two-way jigsaw task and two one-way information gap tasks. The results show that native speakers of Japanese provided positive evidence ten times more than negative feedback to learners but only the learners at the above-average level benefited from positive evidence. However, implicit negative feedback (e.g., recast and negotiation move) was beneficial to all of the learners regardless of their proficiency levels.

McDonough (2007) examined which type of feedback (recast or clarification request) is more effective in the development of simple past activity verbs in an EFL context. The seventy four learners were randomly assigned to receive interactional feedback (either clarification

requests or recasts) or no feedback. She found that the emergence is equally facilitated by NS's clarification request and recast.

Jeon (2007) investigated if interaction is differentially effective in terms of the development of different areas (e.g., morpho-syntax and lexis) of language. More specifically, she examined whether interactions (e.g., negotiation for meaning, recast, and other forms of feedback) between a teacher and English learners of Korean are equally effective in the development of objective relative clause, honorific subject-verb agreement, and lexical target (noun-verb) in Korean. Most of the participants (thirty-seven of forty-one participants) were heritage learners of Korean in beginning and intermediate Korean course. The results show that learners produced relative clauses, nouns, and verbs significantly accurately more than honorific subject-verb agreement. She argued that "interaction is not equally beneficial for all aspect of syntactic and morphological development" (p. 383) and suggested that the benefits of interactions are associated with rule complexity.

As the studies mentioned above confirm, a certain type of feedback is more beneficial than other types of feedback in development of certain morpho-syntactic features. However, a noticeable lack of research exists with regard to type of repair organization as a type of feedback. Thus, this study addresses the effectiveness of type of repair organization regarding development of morpho-syntactic features.

2.3.2 Learnability and learning difficulty

In order to examine the differential effect of morpho-syntactic targets through repair organization, similar morpho-syntactic targets were chosen in terms of potential learnability, and learning difficulty within a linguistic system. Learnability refers to the possibility of being learnable as a product of repair negotiation in the treatment session. One way to investigate learnability is to see whether linguistic targets are existent but not completely internalized in learners' interlanguage system. Learning difficulty shows that one linguistic target should be acquired more easily than the other features (Ellis 2007, p.343). Considering these concerns,

Ellis (2007) chose past tense –*ed* and comparative –*er* in his study. Particularly, learning difficulty can be analyzed in terms of seven criteria: grammatical domain, input frequency, learnability, explicit knowledge, scope, reliability, and formal semantic redundancy, explained below.

1. Grammatical domain: the areas in which targeted linguistic features are applied. Past tense –*ed* is mainly accounted for by morphology, which conveys grammatical coding as an inflectional morpheme. In contrast, comparative –*er* constitutes not only morphology but also syntax (Adams 2004; Ellis 2007).

2. Input frequency: the extent to which certain linguistic features appear in corpus. Ellis (2007) maintains that past tense –*ed* occurs twice as frequently as comparative –*er* in the Corpus of Spoken Professional American English. It is assumed that more frequent input is more easily acquired than less frequent input.

3. Learnability: sequential orders of linguistic features acquired by learners. Ellis (2007) hypothesizes, the past tense –*ed* is acquired before the comparative. Ellis (2007) explains learnability of these linguistic features in terms of Pienemann (1998)'s Processability Theory (PT) which assumes that learners acquire certain linguistic features in a fixed order. PT predicts that learners acquire vocabulary as a first step, grammatical structure as a second step, phrasal structure as a third step, and function of phrasal structure (e.g., subject, object) as a fourth step.

4. Explicit knowledge: easiness of a rule. Ellis (2007) explains that acquiring comparative –*er* is more complex than acquiring past tense –*ed* since learners must consider the number of syllables in adjectives and apply the rules.

5. Scope: a rule application to more or less than 50 cases. The scope of a role is said to be large or small when the rule covers more or fewer than 50 cases The scope of past tense –*ed* is broader and thus easier to learn since past tense –*ed* applies to

every regular verb whereas comparative –*er* applies to more than 50 monosyllabic adjectives but the number of irregular adjectives is less than 50.

6. Reliability: a rule application to more than 90 percent of all cases. The past tense –*ed* and comparative –*er* have fairly large numbers of irregular forms and thus reliability is low.

7. Formal semantic redundancy: the degree to which a rule can be represented through lexical means or is inferable from context. Morphological features of past tense –*ed* and comparative -*er* are often redundant. Past tense –*ed* and comparative –*er* are semantically redundant. For example, past tense –*ed* can be represented through a lexical item, such as *yesterday*; comparative –*er* is inferable from context.

(Ellis 2007, p. 343-344)

The resources of Ellis (2007) are shown in Table 2.2.

Table 2.2. The Learning Difficulty of Past Tense –*ed* and the Comparative –*er*
(Ellis 2007, p. 345)

Criterion	Past tense -*ed*	Comparative -*er*
Grammatical domain	Morphological	Morphological and syntactic
Input Frequency	Relatively frequent	Relatively less frequent
Learnability	Category procedure (lexical morphology)	Phrasal procedure (phrasal information)
Explicit knowledge	Easy	Difficult
Scope	Large	Smaller
Reliability	Low	Low
Formal semantic redundancy	Often redundant	Often redundant

Based on these features of linguistic targets, Ellis (2007) hypothesized that past tense –*ed* is more easily acquired than comparative –*er*. Recalling the results that past tense –*ed* and comparative –*er* were equally developed from the recast but comparative –*er* was more effectively developed than past tense –*er* from the metalinguistic feedback, Ellis (2007) suggests that metalinguistic feedback is more effective conversational feedback than recast.

2.4 Overview of Current Study

The current study is interaction-based quantitative research between NNSs. This study draws from the previous research on interactional benefits, including repair initiation and modified output, negotiation of meaning, and learning effects (Adams 2004; Jeon 2004; Long 1996; Shehadeh 2001, 2003, 2004). The research suggests that interaction helps learners to notice the gap, focus on the linguistic features they have not mastered completely, and provide an opportunity to produce their output with modification. Based on the research, the aims of this research were to investigate i) the effects of task types on repair negotiation between NNS dyads, ii) the development of L2 learners' morpho-syntactic knowledge through repair negotiation in task-based interactions, and iii) the influence of task type on the development of morpho-syntactic features. In order to achieve these two goals, two experiments were conducted. Experiment 1 included three types of tasks to investigate the effect of task types on repair negotiation and Experiment 2 involved two types of tasks with two linguistic targets, past tense and relative clauses to measure development of two linguistic targets. The following sections present the operationalization of the current research, research questions, and hypotheses.

2.4.1 Operationalization

Since Long's Interaction Hypothesis was developed, numerous studies have shown the effects of interactional moves, including meaning negotiation, recast, clarification requests, repetition, metalinguistic feedback, modified output, and explicit correction. Interaction has been considered beneficial to learners because negotiation of meaning provides learners with input, and selective attention, and promotes noticing, hypothesis testing, and output (Adams 2004; Ellis 2007; Iwashita 2003; Long 1996; Lyster and Ranta 1997; Mackey and Philp 1998; McDonough 2007; Shehadeh 1999, 2001, 2003, 2004; Swain 1985; 1998; 2000). Among the different types of interactional moves, this study focuses on repair negotiation and measures not

only the effect of self- and other-initiated repair negotiation, but also determines whether a differential effect on the acquisition of English past tense and relative clauses exist.

First, the effect of self- and other-initiated repair will be determined by the comparison of the proportion of self- and other-initiated repair across three tasks. Second, the effect of L2 development will be assessed by two factors: 1) whether learners produce more target-like forms (past-tense and relative clauses) in post-test than forms produced in pre-test in terms of accuracy and occurrence, and 2) whether learners are able to recognize ungrammatical sentences on grammaticality judgment tests and oral tests.

2.4.2 Research questions

Having reviewed constructs relevant to this research (e.g., Interaction Hypothesis, repair, task-based language teaching), this section reiterates the research questions addressed in Chapter 1. This study addresses the following questions:

1. Does a certain type of task result in different production of repair organization?
2. Does repair negotiation between L2 learners lead to development of linguistic targets? If so, are the morpho-syntactic feature of past tense and relative clauses developed effectively through repair negotiation?
3. Does type of task affect development of morpho-syntactic features? If so, to what extent are morpho-syntactic features of L2 learners developed from different types of tasks?

Comparing these features of the linguistic targets, based on the literature, my hypotheses are developed and explained in section 2.4.3.

2.4.3 Hypotheses

Hypothesis 1. Relationship between task types and repair organization

Following previous findings, this study hypothesizes that type of task will lead to production of different types of repair organization. As previous studies have shown (Jung 1999; Seedhouse 1999), pedagogical context and focus affect the production of repair organization.

Seedhouse (1999) argued that self-initiated repair occurs more frequently than other-initiated repair in task-oriented contexts. Each task is different in terms of interactant relationship, interaction requirement, and outcome option; NNSs are expected to produce different types of repair organization during the tasks. Specifically, since one participant holds information in an information-gap task, the interlocutor predominantly initiates the repair, producing other-initiated repair. In contrast, since each interactant holds an equal amount of information in a jigsaw and a decision-making task, both interactants equally would use self-initiated repair as well as other-initiated repair.

Hypothesis 2. Repair negotiation between non-native speakers and L2 development

It is hypothesized that repair negotiation between L2 learners will lead to increased development of acquisition of the two linguistic targets. Research has shown that the interaction between native speaker/teacher and non-native speaker/student, i.e. NS-NNS, facilitated L2 development of linguistic features through repair negotiation (Iwashita 2003; Long 1981, 1983a, 1983b, 1996; Lyster & Ranta 1997; Mackey et al., 2003; McDonough 2007; Seong 2004). In addition, some research has indicated that NNSs can provide comprehensible input, comprehensible output, and an opportunity to modify output to the interlocutor in interaction (Adams 2004; Mackey et al., 2003; Pica et al., 1993). Based on these findings, repair negotiation between L2 learners is predicted to development of acquisition of these two linguistic targets.

Furthermore, this study hypothesizes that the learning effects of the linguistic targets will not be the same. Jeon (2007) indicates that interaction is not equally beneficial to the acquisition of different learning forms. Moreover, the two linguistic targets in this study are different in terms of input frequency, learnability, explicit knowledge, scope, and reliability; thus they should have different learning effects. In relation to linguistic targets, the learning of past tense is expected to be developed more easily than relative clauses through repair negotiation.

Hypothesis 3. Influence of task type on morpho-syntactic development

It is further hypothesized that learning resulting from a one-way information gap task would be different than that acquired from a jigsaw and decision-making task since the flow of information is different. As posited in Hypothesis 1, a one-way information gap task would produce other-initiated repair whereas jigsaw and decision-making tasks would produce both self-initiated and other-initiated repair. Other-initiated repair is initiated by an interlocutor rather than a speaker, whereas self-initiated repair is initiated by a speaker as a result of monitoring self utterance. Other-initiated repair provides an opportunity for speaker to produce their output regardless whether or not speakers recognize their faulty utterances. Thus, learners may not recognize their faulty utterances despite their interlocutor's repair-initiation in one-way information gap task. However, self-initiated repair generates a context in which learners modify their output resulting from their need to repair or recognition of their mistakes. Thus, despite the effectiveness of other-initiated repair found in previous studies, this study hypothesizes that decision-making tasks resulting in self-initiated repair would have a more positive effect from that found in one-way information gap tasks resulting in other-initiated repair.

2.5 Summary

This chapter has focused on the review of previous studies about repair negotiation and introduced the research questions and hypotheses. The characteristics of task type need to be considered, and empirical research is necessary to determine how types of task influences repair negotiation between L2 learners, and what extent morpho-syntactic knowledge can be improved through repair negotiation. Chapter 3 will illustrate the details of the current study designed to answer Research Question 1.

CHAPTER 3

EXPERIMENT 1

This chapter discusses Experiment 1, which was designed to provide an answer to the first hypothesis, i.e. whether three types of tasks will lead to the production of different types of repair organization. Also, Experiment 1 aims to decide the appropriate level of the acquisition of two linguistic targets for use in Experiment 2. This chapter is divided into the following sections: methods in 3.1, results in 3.2, and discussion in 3.3.

3.1 Methods: Experiment 1

3.1.1 Participants

Various levels of L2 English learners were recruited for Experiment 1. The rationale for choosing participants from a variety of levels comes from the fact that task-based activities are commonly used in ESL classrooms regardless of learners' proficiency levels. The participants were assumed to be familiar with task-based activities and thus were apposite to provide an answer for the first hypothesis asking the relationship between task types and types of repair organization. In addition, recruiting the participants for Experiment 1 from a variety of levels was necessary in order to determine the appropriate level for Experiment 2. Twenty-two adult ESL learners from varying proficiency levels were recruited. At the time of the experiment, they were currently enrolled in regular ESL courses at the University of Texas at Arlington. Choosing participants from the same institution was done to reduce the influence of other possible factors, such as the goal of the institution, teaching style, textbook and resources employed by the institution. In Experiment 1, the participants (17 females and 5 males) ranged in age from 19 to 34. The demographic information collected included age, native language, proficiency level,

exposure to English (target language), and motivation for learning English which might affect the targeted interactions (see Appendix A). The demographic background information was collected through an online survey questionnaire. The subjects were asked to complete the online survey before joining the experiment. Proficiency level was based on comprehensive placement test scores supplied by the institution the participants attended. The participants' proficiency levels varied; the participants represented six different language backgrounds, including Chinese, French, Korean, Spanish, Thai, and Vietnamese. Table 3.1 illustrates the demographic information of the participants.

Table 3.1. Demographic Information

CHARACTERISTICS	
Age	Mean: 24.9 Range: 19 to 34
Length of stay in the U.S.	Mean: 8.3 months Range: 2 months to 37 months
Gender	Male: 5 Female:17
L1 background	4 Chinese, 1 French, 4 Korean, 9 Spanish, 2 Thai, 2 Vietnamese

No specific target level was determined since Experiment 1 involved the comparison of frequency of repair negotiation across three tasks. However, this experiment included a diagnostic test as part of Experiment 1 to determine the target level for use in Experiment 2.

The participants were paired within the same proficiency level. One reason for pairing within the same level of proficiency is balance of power. If participants are in the same proficiency level, they may possibly feel more equal in power during interactions, as opposed to one subject dominating and the other subject merely agreeing. One of the features of classroom discourse is power asymmetry between teacher and students. Such power imbalance makes learners participate in interactions non-contingently or non-voluntarily and thus does not always

facilitate second language acquisition (van Lier 1998). To maintain power balance and allow learners to participate in the interaction spontaneously, forming dyads with the same proficiency-level is more desirable than with different proficiency-levels. With this in mind, this study paired partners of the same proficiency level. Each participant had a partner from a different nationality to eliminate the temptation to revert to native language usage.

3.1.2 Research design

In this experiment, 11 NNS-NNS dyads undertook three types of communicative tasks. The three tasks which were used in Experiment 1 were a one-way information gap task, a decision making task, and a jigsaw task. The tasks were designed for participants to focus on meaning in interactions. For instance, the 'picture description', 'picture story', and 'spot the difference' tasks were designed for participants to transmit and understand the information as exactly as possible.

The participants in the experimental dyads had 12-13 minutes to complete each task. The time limit was set to make all the participants have the same or similar amount of interaction across tasks. Pilot testing had shown that some dyads took the full time limit (15 minutes per task) for the first task but took a shorter time when they were engaged in the third task, and they seemed not to pay as much attention as they did in the first task. Therefore, to prevent participants from taking a shorter time and not paying attention to the third task, setting a time limit for less than 15 minutes was deemed desirable when participants are engaged in more than two tasks. The oral section of the tests and communicative activity were audio-taped. Figure 3.1 is the summary for Experiment 1.

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                            ┌──────────────────┐
                            │                  │
                            │    11 DYADS      │
                            │                  │
                            └──────────────────┘
                    ┌────────────────┼────────────────┐
        ┌───────────────────┐ ┌───────────────────┐ ┌───────────────────┐
        │ One-way information│ │  Jigsaw (two-way  │ │                   │
        │        gap         │ │ information gap)  │ │  Decision-making  │
        └───────────────────┘ └───────────────────┘ └───────────────────┘
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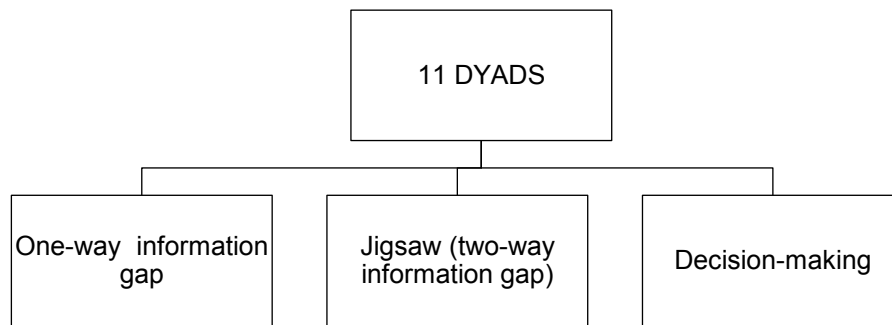
Figure 3.1. Summary of Experiment 1

3.1.3 Materials: Communicative tasks

This study used communicative tasks which focus on meaning in a meaningful context. The tasks were pedagogical tasks designed to encourage participants to produce and understand the targeted features in an experimental setting. The tasks were adapted from a commercial textbook and online resources. Each task is given in Appendix B. Three tasks, an information gap task, a decision making task, and a jigsaw task, were used. Before engaging in a task, oral and written instructions were provided so that the participants understood the goal of the task.

Previous studies have shown that closed-ended, problem-solving, and information-gap tasks generate more negotiation since the tasks require relatively more accurate information than open-ended discussion in general (Ellis 2003; Gass et al., 2005; Long 1980; Pica 1987; Pica & Doughty 1985; Pica et al., 1993; Varonis & Gass 1985b). With this in mind, this study chose three tasks which have a convergent goal. The task types and descriptions are given in Table 3.2.

Table 3.2. Task Type and Description

TASK TYPE	DESCRIPTION
Picture description (one-way information gap task)	Learner A described the picture to learner B. Learner B drew a picture based on Learner A's description.
Picture story (decision making task)	Learners were given a series of pictures ordered randomly and they needed to discuss with each other to figure out in which order and what the story would be collaboratively.
Spot the difference (Jigsaw task)	Learners looked at similar but slightly different pictures. They should ask and describe the pictures to their partner to find out where the differences were in their pictures.

3.1.4 Procedure

All treatment tasks were carried out in one session. All data was collected in a quiet lab located in the university. At all times during the experiment, the researcher was present in the lab to provide instruction for each activity, operate the recording equipment, conduct a diagnostic test, and keep the participants on task. Prior to data collection and before the tasks began, the researcher provided task instruction and answered participant questions. Feedback was not given at any time during the activities. Participants were instructed to work together. They were not allowed to use dictionaries or reference texts. Table 3.3 shows the data collection procedure for Experiment 1.

Table 3.3. Data Collection Procedure

Day 1	TREATMENT CONDITION
	Background questions (through an online survey)
	Activity 1
	Activity 2
	Activity 3
	Diagnostic test (oral and written test)

The participants first filled out a consent form before joining the experiment and engaging in the three activities. The dyads were given thirteen minutes to complete each activity. Special attention was paid to controlling the time for completion of a task. If a pair completed a task faster than expected, they were asked to engage in another similar task. During each session, all interactions between dyads were audio recorded. In order to complete the three tasks, the dyads were told to feel free to ask each other questions. The order of the three tasks was randomly assigned to each dyad to prevent an ordering effect. The activities were audio-recorded. A dyad spent 40 minutes to complete three activities. This procedure resulted in a total of 440 minutes of interaction among the 22 participants. Following the activities, the participants completed a diagnostic test which was composed of an oral and a written test.

3.1.5 Data analysis for interaction

The interactions were analyzed to measure which type of task elicited self-initiated repair and other-initiated repair the most. All interaction was coded in three stages with the first step involving transcription of all interactions across three activities. All of the activities were transcribed, using the transcription convention developed by Sacks, Schegloff, and Jefferson (1974) (see fuller explanation of transcription in Appendix F). However, all interactions were transcribed orthographically rather than phonetically. As pointed by Suh (2007), since the pronunciation was significantly different among non-native speakers, consistent orthographic transcription was deemed more important than consistent phonetic transcription.

All of the data produced orally during interaction was orthographically transcribed by the researcher and a native speaker of English. The data was transcribed from the beginning to the end of interaction, which was around thirteen minutes per task. After transcription, the data was partitioned as to unit of turn (taking); Sacks et al. (1974) define unit of turn as one or more streams of speech bounded by the speech of another, usually an interlocutor. In order to get accurate transcriptions, two graduate students in Linguistics verified the transcriptions. Any parts which were unintelligible were not considered for analysis and coding. Reliability of

transcription between the researcher and the two readers was 96.7% by calculating the number of incongruent words divided by the number of total words in transcriptions.

The second step of analysis included identifying repair sequences, in terms of repair initiator (self-initiated repair and other-initiated repair). The repair sequences were coded in terms of who initiates and who completes repair on the basis of the model proposed by Schegloff et al. (1977). The repair organization is summarized as follows.

- self-initiated, self-repair (SISR)
- self-initiated, other-repair (SIOR)   } Self-initiated repair (SIR)

- other-initiated, self-repair (OISR)
- other-initiated, other-repair (OIOR)   } Other-initiated repair (OIR)

In Experiment 1, the sequence of repair completion was not analyzed since the focus of the study was on sequence of repair initiation. That is, SISR and SIOR sequences were not distinguished separately, but coded as self-initiated repair (SIR). Also, OISR and OIOR were not distinguished separately, but coded as other-initiated repair (OIR).

SIR is a speaker's initiation to modify an utterance when (s)he notices that the utterance was ill-formed, engages in searching words, asks help, and checks interlocutor's comprehension. The following were coded as SIR[8]:

- error correction/replacement (e.g., it's the thirty one-th thirty first)
- word search (e.g., book, eh, book, eh, book stand, sorry)

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[8] There has been some divergence in the literature concerning the discussion of the linguistic strategies for SIR (Bada 2010; Fox, Maschler, & Uhmann 2010; Liu 2009; Shehadeh 2004). For example, Shehadeh (2004) includes some non-lexical means such as a pause, a cutoff, the use of hesitation (e.g., *em, uh, uhm*), and lexical means (e.g., *I mean*), but Fox et al. (2010) consider only lexical means. This study excluded the use of non-lexical means such as pause and hesitation (e.g., *um, uhm*) since most of learners used hesitation almost habitually when they uttered and were used for planning of utterance.

- use of lexical means (e.g., I mean, I don't know how to say)

- cut-off (e.g., the man who has the b-bu-balloon)

- comprehension check (e.g., do you know what I am saying?)

Schwartz (1980) and Kurhila (2006) found a difference in usage of word search in native and non-native speakers; word search is used to recall lexical items and grammatical structures by L2 learners whereas it is used to retrieving person and place names in by native speakers. In contrast, OIR is an interlocutor's indication that (s)he does not understand the speaker. As generally agreed upon (Long 1980; Schegloff et al., 1977; Shehadeh 2001, 2004; Varonis & Gass 1985b), the following were coded as OIR:

- clarification request: this strategy includes indicating of non-understanding (what?, huh?, pardon?, sorry?, can you repeat it?, what do you mean?, I don't understand), or using repetition + question word (*partial repetition* + *question word*)

- confirmation check: do you mean*...?, (partial) repetition*

- correction: interlocutor's correction on the speaker's previous utterance

After coding of SIR and OIR, interrater reliability was evaluated for repair organization of transcription. The data was coded by the researcher and a second rater who was a native speaker of English. The second rater coded 50% of the repair organization data. A statistical test was employed to measure the consistency in rating between the two raters. In order to measure the accuracy in rating between the two raters, Krippendorff's alpha was employed and the inter-rater reliability was 0.97 for coding the repair negotiation.

The last step of analysis identified the frequencies of occurrence of self- and other-initiated repair in relation to three tasks. The data collected for this study were analyzed in terms of frequencies, proportion, and the level of significance. For statistical analysis, an ANOVA test was used to compare frequencies of categorical variables and measure the main effect of task

types and repair types on frequency. Type of task and type of repair were independent variable and mean frequency was the dependent variable.

In summary, in this section the research design for Experiment 1 as well as coding of data was discussed. Experiment 1 aims to provide an answer for the research question(s) related to the relationship between task types, repair types and frequency of repair types. The coding scheme for repair negotiation is given in Figure 3.2.

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                        ┌──────────────────┐
                        │                  │
                        │  transcription   │
                        │                  │
                        └────────┬─────────┘
                                 │
                        ┌────────┴─────────┐
                        │      repair      │
                        │    negotiation   │
                        └────────┬─────────┘
                 ┌───────────────┴───────────────┐
        ┌────────┴─────────┐          ┌──────────┴─────────┐
        │  self-initiated  │          │   other-initiated  │
        │   repair (SIR)   │          │    repair (OIR)    │
        └────────┬─────────┘          └──────────┬─────────┘
                 │                ┌──────────────┼──────────────┐
        ┌────────┴─────────┐ ┌────┴─────┐ ┌──────┴──────┐ ┌─────┴────┐
        │   replacement    │ │clarificat│ │ confirmation│ │   error  │
        │   word serach    │ │   ion    │ │    check    │ │correction│
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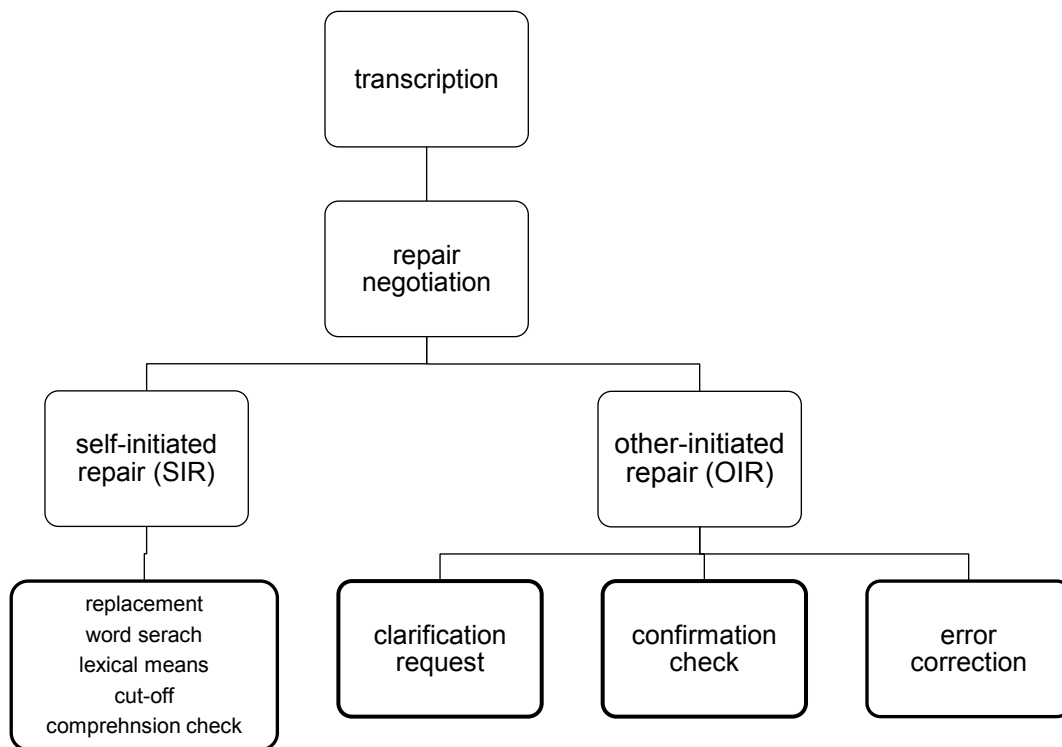
Figure 3.2. Coding Scheme of Learners' Repair Negotiation

<u>3.2 Results of Experiment 1</u>

3.2.1 Results of interaction data

Before analyzing the data, in order to see whether different types of task generated a difference in the number of turns and the proportion of turns to a minute were calculated. The number of turns was considered as an important factor that could influence the frequency of

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self-initiated and other-initiated repair. It is presumable that some types of task may intrinsically have triggered more interaction than other types of task. Thus, before comparing the frequency of repair initiation in three types of task, it was necessary to calculate whether participants involve in a similar amount of interaction in the three types of task and to compare the frequency of repair negotiation in those contexts. As a means of measuring the amount of interaction, the number of turns in each task from each dyad was analyzed. Table 3.4 presents the number of turns to complete the task and proportion of turns to a minute.

Table 3.4. Number of Turns in Three Tasks

	One-way	Jigsaw	Decision-making
Dyad 1	224	293	308
Dyad 2	186	300	284
Dyad 3	64	158	138
Dyad 4	169	179	136
Dyad 5	229	213	136
Dyad 6	195	196	150
Dyad 7	215	262	174
Dyad 8	248	255	283
Dyad 9	170	195	169
Dyad 10	159	272	125
Dyad 11	155	171	147
TOTAL	2014	2494	2050
Mean of turn	183.09	226.72	186.36

The total numbers of turns in the one-way information gap task, jigsaw task, and decision-making task were 2014, 2494, and 2050, respectively. A Bartlett test of homogeneity of variances indicated no significant difference among the variances of the three groups (p=.50). A repeated-measure ANOVA indicated that number of turn differed as a function of task type, $F_{(2, 20)}$=4.63, p<.05. Some significant differences were found between one-way and jigsaw tasks, $F_{(1,10)}$= 9.55, p<.05 and between jigsaw and decision-making tasks, $F_{(1,10)}$=7.39, p<.05, but no difference between one-way and decision-making tasks, $F_{(1,10)}$= 0.03, p=.86. Mauchly's Test for Sphericity indicated that there was no violation of Sphercity (p=.54). In other words, these results can be interpreted that the three types of task did not elicit a similar amount of

interaction despite the similar amount of interaction time. The number of turns of jigsaw task was different from that of one-way information gap and decision-making tasks.

3.2.1.1 Repair initiation in three tasks

Research Question 1 asked to what extent the learners initiate repair in a task-based interaction. To answer Research Question 1, the total frequency of SIR and OIR across three tasks was analyzed. There were a total of 1,519 occurrences of repair across the three tasks as shown in Table 3.5. Overall, there were more instances of OIR than SIR.

Table 3.5. Self- and Other-initiated Repair in Dyadic Interaction in Three Tasks

	SIR	OIR	Total
# of repair	645	874	1519
% of repair	42.4%	57.5%	100%

As Table 3.5 shows, there were 645 instances (or 42.4 %) of SIR and 874 instances (or 57.5%) of OIR in three tasks. Table 3.6 further illustrates mean frequency of SIR and OIR produced by each dyad. The mean frequency of SIR and OIR produced by each pair was calculated by the proportion of turns that were SIR and OIR for each group. That is, the proportion during three tasks was calculated in terms of SIR turns/total turns and OIR turns/total turns for each group.

Table 3.6. Proportion in terms of SIR and OIR to Total Turns

	SIR	OIR
Dyad 1	9.65	11.95
Dyad 2	10.72	15.02
Dyad 3	15.13	17.58
Dyad 4	10.47	15.15
Dyad 5	14.95	11.16
Dyad 6	13.46	14.58
Dyad 7	9.72	14.53
Dyad 8	5.00	9.80
Dyad 9	6.32	12.05
Dyad 10	9.66	14.38
Dyad 11	9.98	12.92

As Table 3.6 illustrates, each dyad shows a tendency that each dyad produced more OIRs than SIRs in three tasks. A planned comparison revealed that mean frequency of OIR was significantly greater than the frequency of SIRs, $F(1,10)=14.6$, $p<.01$. Thus, each dyad felt free to produce other-initiated repair when they needed.

3.2.1.2 Effects of types of task on repair initiation

The mean frequency of repair initiation of each task was further analyzed in terms of types of task. Table 3.7 illustrates the descriptive statistics by comparing mean frequency of SIR and OIR in each task. Again, SIR and OIR turns were calculated by dividing turns of SIR and OIR by total turns in each task. The proportion of SIR produced by each pair was 11.3 in one-way information gap task, 9.03 in jigsaw task, and 10.9 in decision-making task. The proportion of OIR produced by each pair was 22.5 in one-way information gap task, 15.5 in jigsaw task, and 2.61 in decision-making task.

Table 3.7. Proportion in terms of SIR and OIR to Total Turns by Task Types

	Proportion of SIR turns			Proportion of OIR turns		
	One-way information	Jigsaw	Decision-making	One-way information	Jigsaw	Decision-making
# of dyads	11	11	11	11	11	11
Mean	11.3	9.03	10.9	22.5	15.5	2.61
SD	4.90	2.41	5.46	3.55	3.29	0.92

As Table 3.7 shows, the one-way information gap task facilitated the greatest number of instances of repair negotiation, while the decision-making task facilitated the least. The one-way information gap task and jigsaw task showed a similar pattern that elicited more instances of OIR than SIR. In contrast, the decision-making task showed the opposite pattern, generating

SIR more than OIR. The amount of repair initiation including SIR and OIR together was 33.8 in the one-way information gap task, 24.5 in the jigsaw task, and 13.5 in the decision-making task. In addition to the mean frequency of repair negotiation, the percentage of SIR and OIR in each task is shown in Figure 3.3.
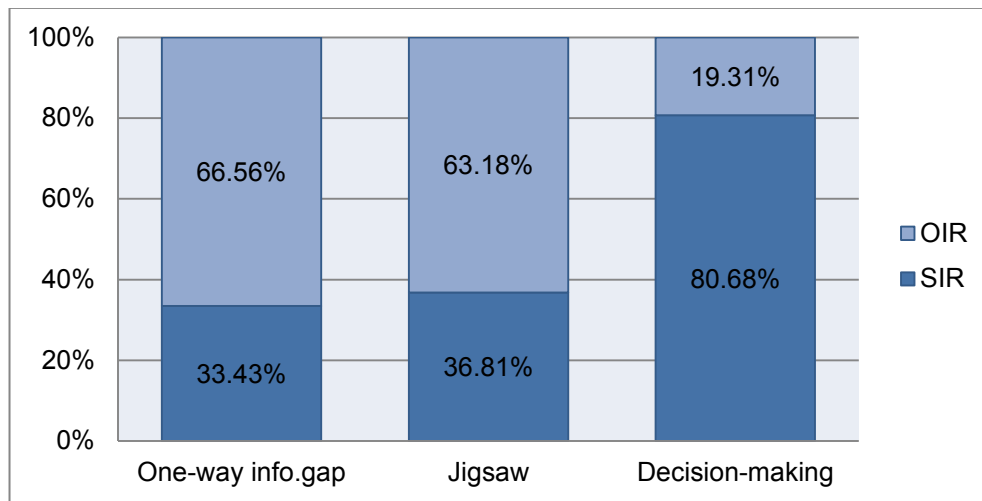
Figure 3.3. Percentage of Repair Negotiation across Tasks

As seen in Figure 3.3, the one-way information gap and jigsaw tasks elicited twice as much OIR as SIR, while the decision-making task elicited four times as much SIR as OIR. It is notable that, even though the mean frequency of SIR in the decision-making task was similar to the other two tasks as Table 3.7 shows, the percentage of SIR in the decision-making task was quite high when compared to the percentage of SIR in two other tasks. Taken together, Table 3.7 and Figure 3.3 suggests that the type of task influences the production of repair initiation in two respects. First, of three types of task, one-way information gap task elicited the highest frequency of repair initiation (M=33.8, SIR+OIR), whereas decision-making task elicited the lowest frequency of repair initiation (M=13.5, SIR+OIR). Second, a greater percentage of SIR was elicited in the decision-making task and a greater percentage of OIR was elicited in the one-way information gap task most frequently.

In order to see the effect of the task type on mean frequency of repair negotiation, a repeated ANOVA test was used. A repeated measures ANOVA with task type (one-way

information gap, jigsaw task, decision-making task) and repair type (SIR and OIR) as independent variables and frequency as the dependent variable showed a significant main effect of task type, F (2, 20)=60.5, p<.001, indicating that frequency was influenced by the types of tasks. A significant main effect of repair type was found, F (1, 10)= 14.67, p<.001. This result suggests that frequency of OIR was higher than that of SIR. However, there was a significant interaction of task type and repair type, F (2, 20)=55.51, p<.001. Figure 3.4 presents the mean frequency of SIR and OIR in three types of task.
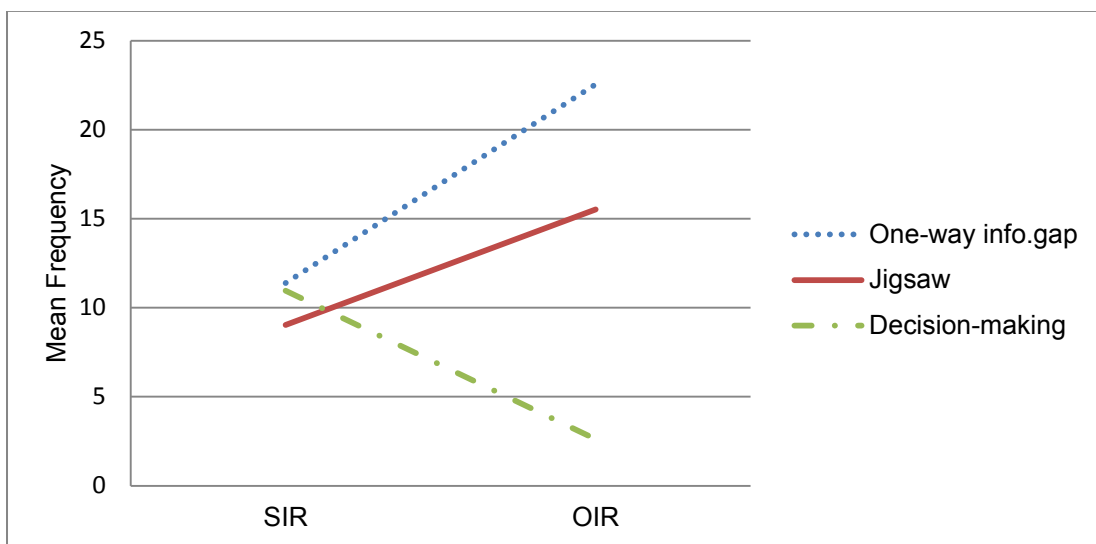
Figure 3.4. Mean Frequency of SIR and OIR by Task Types

As Figure 3.4 shows, the mean frequency was influenced by the repair type and task type. Planned comparisons indicated that the frequency of OIR was higher than SIR in one-way information gap task (F (1,10) =79.31, p<.001); (ii) the frequency of OIR was higher than SIR in jigsaw task (F (1,10) =29.96, p<.001); and (iii) the frequency of SIR was higher than OIR in decision-making task (F (1,10) =25.59, p<.001).

Furthermore, for a comparison of the frequency of SIR in three tasks, a repeated ANOVA test was used. The test showed that there was no significant difference in three tasks (F (2, 20) =1.16, p =.33). However, a comparison of the frequency of OIR in three tasks showed that there was significant difference in the three tasks (F (2, 20) =229.41, p <.001). In sum,

results show that type of task does not influence SIR but significantly influences OIR. To investigate where the difference exists of three tasks, paired T-test was used. A planned comparison revealed that frequency of OIR was significantly different across tasks. The frequency of OIR was significantly different between one-way information gap and decision-making tasks, $F_{(1,10)}=377.38$, $p<.001$, between jigsaw and decision-making tasks, $F_{(1,10)}=166.32$, $p<.001$, between one-way information gap and jigsaw task, $F_{(1,10)}=79.76$, $p<.001$. The frequency of OIR across the type of task is illustrated in Figure 3.5. The asterisk * represents statistical significance level, $p<.001$.
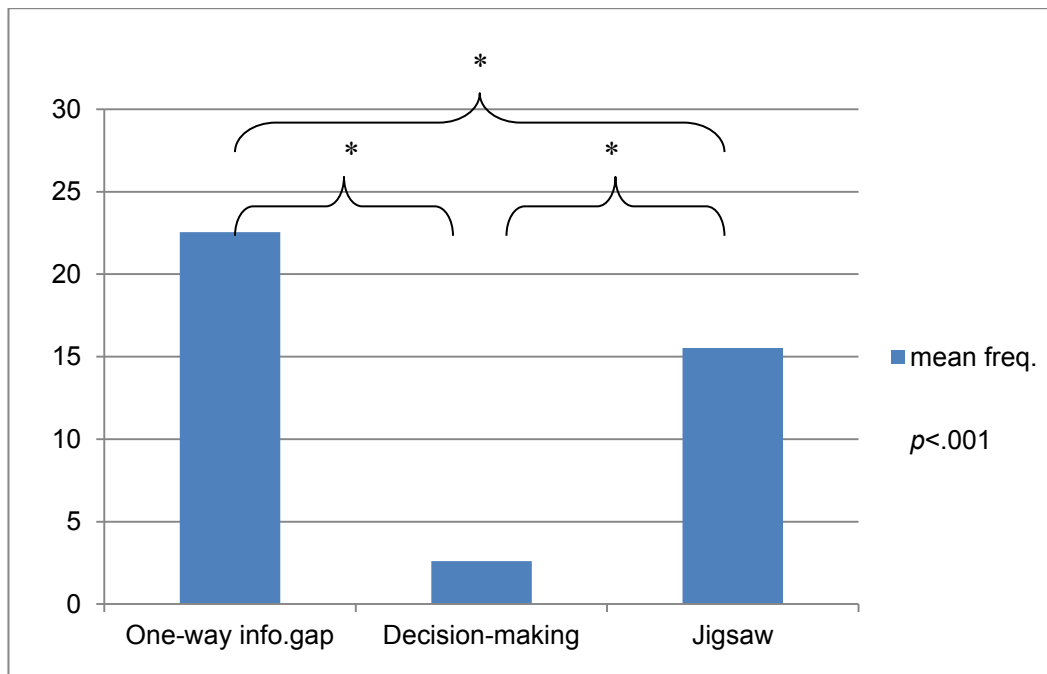
Figure 3.5. Frequency of OIR across Tasks

3.2.1.3 Effects of interactant relationship on repair initiation

The frequency of OIR across tasks was further investigated in terms of each learner's repair initiation to see whether each learner of a dyad produced a similar amount of repair negotiation. The rationale for this question lies in the assumption that the more repair negotiation occurs, the more L2 learning is facilitated, as many studies have shown (Long 1996; Pica et al., 1993; Varonis and Gass 1985b). However, in SLA, less attention has been given to whether both

participants in a dyad equally benefit by repair initiation, or if one participant benefits more than the other. The results above show that the frequency of SIR was elicited equally regardless of type of task, but the frequency of OIR was generated differently with regard to type of task. The findings indicate that this may be due to the different contributions by the two speakers during the tasks. The one-way information gap task is different from the jigsaw and decision-making tasks in that only one interactant holds the information (e.g., information-holder) and the other interactant requests the information (e.g., information-requester) (Pica et al., 1993). In other words, unlike jigsaw and decision-making tasks that allow information to be exchanged mutually, one-way information gap task allows information to be exchanged unilaterally from the information holder to information requester. Given this consideration, the amount of OIR by each participant in one-way information gap task was calculated to examine whether both participants in a pair generated a similar amount of OIR[9]. The results of OIR were analyzed in terms of each participant's frequency in a dyad in the one-way information gap task. The participants of each dyad were coded into information holder and information requester and analyzed in terms of OIR frequency. The information holder was the participant who provided the information to the information requester, and the information requester was the participant who asked for clarification and confirmation from the information holder. The interactions of the participants of each dyad were analyzed as to how often the participants initiated repair as a result of the interlocutor's speech. Table 3.8 shows how often the participants in these roles initiated a repair, indicating a lack of understanding of the interlocutor's speech.

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[9] Since the participants of jigsaw and decision-making tasks exchange their roles as information-holder and information requester dynamically during tasks, it was not possible to separate the roles as information-holder and information-requester in the tasks.

Table 3.8. Each Participant's OIR Frequency in One-way Information Gap Task

	One-way info. gap
Information holder	5.2
Information requester	34.7

The result shows that the frequency of information-holder and information-requester in one-way information gap task was quite different. The mean frequency by information-holder of OIR was 5.2 where information-requester was 34.7. The information-requester in each dyad produced the instances of OIR nearly seven times as much as the information-holder. Welch Two Sample T-test showed a statistical difference (t = -5.12, p <.001). The different roles of the speaker as an information holder and an information requester lead to the different contribution of OIR frequency in the task; indeed, in one-way information gap task, the information-requester uses more OIR than the information-holder to clarify or confirm their understanding. In contrast, since the participants were both information-holder and information-requester in the jigsaw and decision-making task, their roles were flexibly shifted in the interaction causing a similar frequency of OIR between the participants. Therefore, the finding indicates that the interactant relationship serves an important role in eliciting OIR. Also, the results indicate that the information-holder and information-requester may not benefit equally from the task, and the information-requester may benefit more than the information-holder.

3.3 Discussion

Experiment 1 examined the amount of L2 learners' SIR and OIR in three tasks in student-student dyadic interaction. The findings showed notable points concerning the amount, proportion of SIR and OIR, and the influence of types of tasks on repair negotiation. The first research question examined to what extent types of task influences the frequency of repair initiation. The result showed that the mean frequency of OIR was higher than that of SIR in a

one-way information gap and jigsaw task. This finding differs from some previous studies, such as Shehadeh's (2001; 2004) findings that show the opposite tendency from this. One possible reason for this is that non-lexical means such as hesitation (e.g., eh, emm) and pause were not included in this study. Moreover, Schegloff et al. (1977) claimed that SIR is more preferred than OIR in mundane interactions, but that did not hold true in this context since the dyadic interaction in this study involved task-based interaction between non-native speakers and the learners were forced to interact with each other as much as they could in a given time in order to complete a task. Thus, the results of this study indicate that a task-based context may lead to higher frequency of OIR than SIR.

Moreover, the results showed that the frequency of SIR is evenly elicited across tasks, whereas the frequency of OIR shows a significant difference in the three tasks. It is notable that the participants pay attention to their utterances and attempt to transmit the information as accurately as possible regardless of type of task. In contrast, the instances of OIR sequences are influenced by the type of task, showing that the one-way information gap task elicits OIR the most, the jigsaw task the second, and the decision-making task the least. One reason that the decision-making task elicits OIR the least can be interpreted in terms of the characteristics of the tasks. Unlike one-way and jigsaw tasks, the participants in the decision-making task hold the same information so they are not pushed to initiate their interlocutor's faulty utterance, since they can understand what their interlocutor tried to say easily. Although the overall frequency of OIR is higher than SIR across three tasks, the frequency of OIR was predominantly elicited from the one-way information gap task; of the total 874 OIR, more than fifty percent was elicited from the one-way information gap task. This pattern indicates that the learners hesitate to initiate repair for their interlocutor's utterance unless they are forced to. Thus, the extent of initiating repair for their interlocutor is influenced by the type of task.

These findings suggest two pedagogical implications in relation to SIR and OIR. First, considering the prevalence of OIR in view of the role of repair negotiation in L2 learning, it can

be concluded that OIR in task-based dyadic interactions enables learners to practice the target language by requesting confirmation, clarification, or on rare occasions, correcting a speaker's output, which serves both interactants as being autonomous language learners.

Overall, OIR in a one-way information gap task leads both interactants (listener and speaker) to take a more active role by monitoring the interlocutor's utterance and asking questions as well, which in turn provides the speakers the opportunity to modify their utterances. Therefore, other-initiated repair should be considered a desirable classroom teaching and learning strategy.

Second, the results can help instructors consider the benefits of task-based pair interaction in the L2 classroom with regard to production of repair initiation. As stated earlier, OIR occurs more predominantly in one-way and jigsaw tasks than in decision-making tasks. However, this does not mean that the decision-making task is not beneficial for learners. Rather, this suggests a differentiation of applications of tasks in the classroom. For example, one-way information gap task and jigsaw task would be beneficial when learners need to focus on both their own and their interlocutor's utterances, whereas decision-making task would be useful when learners need to focus more on their own utterances.

The selection of task depends on the learners' proficiency level and pedagogical focus. A learner with a low-proficiency level may often not understand what the interlocutor says and thus feel pressure when completing a one-way information gap or jigsaw task in a given time period. Also, if the pedagogical focus of the class is to enhance the learners' fluency rather than accuracy, a decision-making task in which the learners hold the same information would be more beneficial for learners with low proficiency. Conversely, if the pedagogical focus of the class is to enhance the exchange of accurate information, the information gap task would be beneficial for learners with intermediate or advanced proficiency who may feel less pressure in generating utterance in moment-by-moment interaction.

Altogether, this study has shown that the production of SIR and OIR is influenced by the type of task; SIR was elicited in a decision-making task most frequently, and OIR was elicited in a one-way information gap task most frequently. However, very little research has been conducted as to whether and to what extent SIR and OIR can improve L2 learning. It would be valuable to investigate whether and to what extent L2 learners' repair initiation can improve L2 learning. In order to fill the gap in the research, Experiment 2 was designed to answer whether and to what extent SIR and OIR leads to L2 learning. Thus, the one-way information gap task and the decision-making task were chosen for Experiment 2. The jigsaw task was significantly different from the other two tasks in terms of turn-taking (see 3.2.1), so that task was excluded in Experiment 2.

CHAPTER 4

DIAGNOSTIC TEST

This chapter presents the methods, coding, and results of a diagnostic test given to the participants of Experiment 1. The diagnostic test was given after the task treatments in order to decide an appropriate level of participants for Experiment 2. The diagnostic test provided a guideline to select the appropriate level in which the two linguistic targets were not completely internalized but had room for improvement through learners' repair negotiation. This step was crucial for Experiment 2 which considered the morpho-syntactic development through repair negotiation between L2 learners. Thus, in order to maximize the effect of morpho-syntactic development through repair negotiation, choosing an appropriate level in which floor and ceiling effects could be avoided was essential. This chapter is divided into the following sections: methods for the diagnostic test in 4.1, coding and results of past tense in 4.2, coding and results of relative clauses in 4.3 and comparison of two linguistic targets in 4.4.

4.1 Methods: Diagnostic Test

4.1.1 Participants

The twenty-two subjects that participated in the task treatments in Experiment 1 also took the diagnostic test. However, due to difficulties with the recording equipment, two participants' results were not fully recorded, two for the past tense portion and one for the RC portion. Thus, their results were not included from the oral test analysis.

4.1.2 Procedures

Immediately after engaging in Experiment 1, all of the participants took a diagnostic test designed to identify the appropriate level of acquisition of the two linguistic targets, past tense and relative clauses, for use in Experiment 2. The diagnostic test was composed of oral and written portions. The oral test was used to assess the participants' productive knowledge of the two linguistic targets in communicative interactions. This portion was administrated directly by the researcher. Each participant was asked to produce ten sentences related to past tense and nine sentences related to relative clauses. No fillers were included due to time constraints. The written test was conducted using a computer in a sound-attenuated booth in a quiet lab. The written test had thirty-six questions, which were used to measure the learners' receptive skills. This type of task was used due to ease of implementation and to lack of pressure on the participants to communicate without time constraints. That is, oral tests require learners to communicate with the pressure of time while written tests allow learners to take more time and understand their internal grammar (Adams 2004). The entire diagnostic test took around fifteen to seventeen minutes per participant. No correction or repair was provided during the test sessions. The order of oral and written tests was randomly assigned to prevent an ordering effect. The coding and results of past tense will be discussed in 4.2, and the coding and results of relative clauses will be discussed in 4.3.

4.1.3 Linguistic targets

Adopting Ellis' (2007) theory on learning difficulty of past tense and adjective comparatives, this study investigates two linguistic features, past tense and relative clauses, to determine the differential learning effect in two similar areas of language (e.g., morphology and morpho-syntax). The learning difficulty of past tense and relative clauses is compared below.

- Grammatical domain: grammatical domain of RC is more complex than past tense. The grammatical domain of past tense involves morphology since it conveys

grammatical inflection, whereas that of relative clauses is both morphological and

syntactic   since they involve clausal constructions.

- Input frequency: input frequency of relative clauses was markedly lower than past

  tense. The input frequency of each linguistic feature is yielded through an analysis of a

  spoken genre, including 85 million words in different TV and radio programs, in Corpus

  of Contemporary American English. The input frequency of spoken genre was 996,637

  instances in past tense and 106,306 in relative clauses.

- Learnability: past tense is acquired before relative clauses. Learners acquire certain

  linguistic features in a fixed order, according to Pienemann (1998)'s Processability

  Theory (PT). For example, a grammatical structure is acquired before a phrasal

  structure is acquired.

- Explicit knowledge: relative clauses are more difficult than past tense since learners

  must consider animacy, singularity/plurality, and case.

- Scope: scope is not applicable to relative clauses. Past tense –*ed* applies to every

  regular verb and thus the scope is large. However, the relative clauses (who(m), which,

  whose, in which, that) have a limited number of forms and thus the scope is not

  applicable.

- Reliability: reliability of relative clauses is high whereas reliability of past tense is low.

  Relative clauses do not have irregular forms and past tense has a large number of

  irregular forms.

- Formal semantic redundancy[10]: past tense and relative clauses are both semantically

---

[10] DeKeyser (2005) defines 'redundancy' as "the form at issue is not semantically necessary because its meaning is also expressed by at least one other element of the sentence" (p.8). Based on Ellis (2007) and DeKeyser (2005)'s notion, this study assumes that semantic redundancy is related to whether the form in question is able to be paraphrased in other ways. In this sense, relative clauses are assumed to be semantically redundant since they can be expressed by other elements such as connectives 'and' as well as inferable from the context. However, this is not a crucial distinction for learnability of past tense and relative clauses.

redundant. Past tense –ed can be represented through a lexical item, such as *yesterday*. Relative clauses can be inferred from context and learners can use the lexical conjunction *and*.

A comparison of these two morphological features is given in Table 4.1.

Table 4.1. The Learning Difficulty of Past Tense and Relative Clauses
(Adapted from Ellis 2007, p 345)

CRITERION	PAST TENSE *-ed*	RELATIVE CLAUSES
Grammatical domain	Morphological	Morphological and syntactic
Input frequency	Relatively frequent	Relatively less frequent
Learnability	Category procedure (lexical morphology)	Phrasal procedure (phrasal information)
Explicit knowledge	Easy	More difficult
Scope	Large	Not applicable
Reliability	Low	High
Formal semantic redundancy	Often redundant	Often redundant

As Table 4.1 shows, the two linguistic targets chosen for this study are different in terms of grammatical domain, input frequency, learnability, explicit knowledge, scope, reliability, and formal semantic redundancy. The differences between the two linguistic targets may indicate differential learning effects on the treatment. For example, one linguistic area may benefit learners more than the other. Since Experiment 2 aims to decide whether and to what extent similar linguistic areas could be improved through repair negotiation between L2 learners, consideration of learning difficulty contributes to understanding beneficial effects of repair negotiation between L2 learners. With the consideration of these characteristics of the two linguistic targets, past tense would be learned more successfully than relative clauses since past tense has a high frequency and involves category procedure.

4.1.4 Rationale for linguistic targets

The two linguistic targets with contrasting characteristics in learning were selected to determine the differential learning effect on L2 development through NNS dyads' interaction. Past tense requires learners to use correct grammatical coding about an event which occurred in the past, whereas relative clauses require learners to consider the morpho-syntactic features such as case and syntactic movement. In past tense, not only regular but also irregular verbs were targeted since the frequency of irregular verbs is fairly high in interactions. Regarding relative clauses, only three types of restrictive relative clauses were chosen: subject, direct object, and oblique. The rationale of choosing these three types of relative clauses arose from learnability and learning difficulty. It would not be possible for learners to learn all the structures of relative clauses during a task; selecting a few structures of relative clauses would be more desirable for this study. The selection of relative clauses was based on the accessibility hierarchy (AH), as suggested by Keenan and Comrie (1977). AH makes a prediction of what types of relative clauses will exist in a given language. That is, AH suggests that the types of relative clauses can be represented by an implicational hierarchy as follows.

Accessibility Hierarchy (AH)

  subject > direct object > indirect object > oblique > genitive > object of comparison

  (SU)   (DO)   (IO)   (OBL) (GEN) (OCOMP)

  (Keenan and Comrie 1977)

AH claims that if a language has an indirect object (IO), it implicates that the language has SU and DO which are positioned to the left of IO, but may or may not allow OBL, GEN, and OCOMP which are positioned to the right of IO (Keenan and Comrie 1977). In SLA, AH has been applied as a predictor of difficulty of acquisition. That is, the more AH leans toward the right side, the more difficult for learners to acquire. Learners should acquire subject relative

clauses first, direct object second, indirect object third, and oblique fourth in that order. Based on this theory, three structures from the easiest types of relative clauses were chosen: SU, DO, OBL. Oblique was chosen instead of indirect object since indirect object is not acquisitionally and descriptively distinguishable from oblique (Gass 1979, 1980; Izumi 2003; Keenan & Comrie 1977).

In addition to the choice of relative clauses, the subtypes of SU and DO were further considered since subtypes of SU and DO show a difference in order of acquisition.

SU relative clauses

SS: subject of embedded sentence is identical to the subject of the main clause (e.g., the girl who speaks Basque is my cousin)

OS: subject of embedded sentence is identical to the object of the main clause (e.g., I know the girl who speaks Basque)

DO relative clauses

SO: object of embedded sentence is identical to the subject of the main clause (e.g., the man who(m) you met is my teacher)

OO: object of embedded sentence is identical to the object of the main clause (e.g., I know the place you mentioned).

(Celce-Murcia & Larsen-Freeman 1997, p.366)

According to Celce-Murcia & Larsen-Freeman (1997), learners acquire relative clauses in the order of OS > OO > SS >SO. That is, OS is acquired first, OO second, SS third, and SO the last. Thus, considering the order of mastering SU and DO, this study includes only the types of OS and OO assuming them to be easier to acquire.

<div align="center">4.2 Past Tense</div>

4.2.1 Oral Test: Past Tense

      The participants' responses from the test were recorded, transcribed, and analyzed in order to determine the appropriate levels of participants for Experiment 2.

      4.2.1.1 Transcription

      All of the data produced orally during the oral test was orthographically transcribed by the researcher and a native speaker of English. Any parts which were unintelligible were excluded from analysis and coding.

      4.2.1.2 Coding

      The data was coded by the researcher and a second rater. The second rater was a native speaker of English, who coded 50% of the data of the test. A past tense sentence was coded in terms of targetlike and non-targetlike usage. When the past tense sentences were coded as non-targetlike usage, they were then classified by error types. Similar to Adams (2004) analysis technique, the sentences were initially coded in terms of regular and irregular verbs. Then, they were coded in terms of targetlike and non-targetlike usage. When the past tense sentence was coded as non-targetlike usage, the past tense sentences were also classified by error type. This coding was done in accordance with the most common error types found in previous studies, as given in Table 4.2.

Table 4.2. Past Tense: Error Types

ERROR TYPE	DESCRIPTION	EXAMPLE
T1	the use of a verb's simple form	work
T2	no marking on auxiliary	does not come
T3	regular marking on irregular verb	comed
T4	double marking	camed
T5	marking on auxiliary and verb	did not came
T6	Mismarking on auxiliary	does not came
T7	replacement	drive, drove

(Adams 2004; Dulay, Burt & Krashen 1982; McDonough 2001)

In addition to the coding of error types found in Table 4.2, the frequency of same verb use was considered. The verbs used multiple times and exact repetition (e.g., I went, I went) were considered to have one-time frequency. Replacement strategy of same base form (e.g., we drive actually drive we drove to Los Angeles) was counted as one-time frequency. However, different forms of the verb *be* (e.g., I was, they are) were counted separately since the realizations of the verb *be* were different with regard to person and tense. When the learners produced more than ten sentences, the first ten sentences were only considered; the extra sentences were excluded in the analysis. In addition, when the combination of past tense and preposition 'to' resulted in unintelligibility in terms of past tense (e.g., walked to/tried to), the data was excluded due to difficulty in determining whether or not past tense was applied.

4.2.1.3 Scoring: Past Tense

Transcriptions were scored in terms of proportion of error rates of the linguistic targets in contexts where learners described a past event. The oral test was scored as follows: zero points were awarded for targetlike form, a half point was awarded for partially targetlike form, and one point was awarded for non-targetlike forms in obligatory contexts. Specifically, a half point was also given to forms which included the use of the linguistic targets but not an

expected form (e.g., comed). Also, when a replacement strategy (e.g., *drive, drove*) was used, a half point was given since it showed that the learners did not completely internalize the grammar enough to produce promptly without errors.

Since this study focuses on the development of morpho-syntactic features, it considers not only targetlike usage but also suppliance of non-targetlike usage, following the procedures used in several previous studies (Adams 2004; Jeon 2007). Thus, not all error types mentioned above were considered in the same way. Specifically, error type T1 and T2 was awarded one point since it was assumed that learners may not have recognized the usage of past tense and did not attempt to use it. However, error types T3-T7 were considered to be partially targetlike and were awarded a half point since they show that the learners at least recognized the usage of past tense, even though they did not internalize the rule completely. The scoring scheme for past tense is given in Figure 4.1.

```
                    ┌─────────────────────┐
                    │  Regular/irregular   │
                    │       verbs          │
                    └─────────────────────┘
                        ╱           ╲
                       ╱             ╲
            ┌──────────────┐    ┌──────────────┐
            │  Targetlike  │    │    Non-      │
            │  (0 point)   │    │  targetlike  │
            └──────────────┘    └──────────────┘
```

Error Type   T1 T2 T3 T4 T5 T6 T7

                 ⎵⎵⎵   ⎵⎵⎵⎵⎵⎵⎵
                1 point   0.5 points
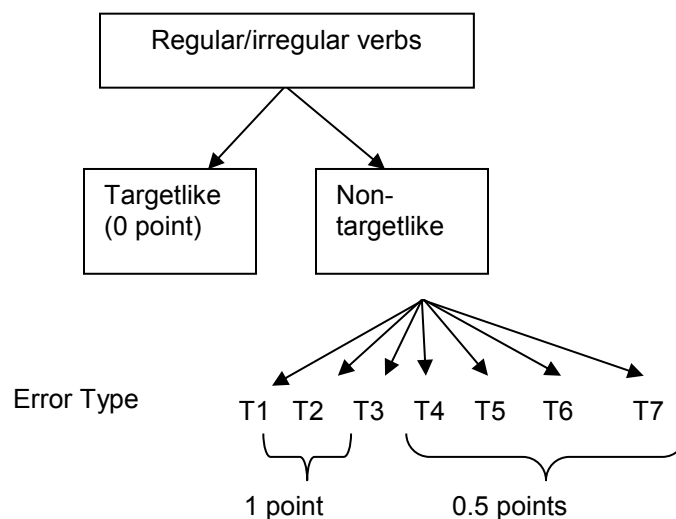
Figure 4.1. Scoring for Past Tense (Adapted from Adams 2004, p. 99)

4.2.1.4 Interrater reliability

Interrater reliability was evaluated for the two linguistic targets, past tense and relative clauses. In order to measure the accuracy in rating between the two raters, Krippendorff's alpha was employed and the inter-rater reliability was 0.95 for transcription and 0.90 for coding of error types and scoring.

4.2.1.5 Materials

Three versions of the oral test were developed targeting past tense to ensure that each test would elicit the past tense. Each test was created by the researcher and a native speaker of English and included contexts in which past tense should be used. One of the versions of the tests was given to each learner. The past tense oral diagnostic test instructions asked the learners to produce at least ten sentences to describe (1) an important event(s) in their life, (2) the important events in the life of the person they most admire, or (3) their last vacation.

4.2.2 Results of Oral Test

The sentences produced by the learners were coded by frequency and error types of verb form. From a total of 200 sentences, 174 past tense sentences were analyzed. The reason

for the discrepancy in number of sentences produced and number analyzed came from the consideration of repetition of verbs. For example, since the participants were not limited to the use of specific verbs, some verbs were used more than once (e.g., I went to the store, and I went to school). Thus, the same verbs when repeated were excluded. Of 174 sentences, partially correct sentences composed 16.3% whereas incorrect sentences composed 58%. Table 4.3 presents the number of incorrect and partially correct sentences produced by each participant. Due to the repetition of verbs, the number of sentences produced was analyzed by dividing the number of partially correct sentences and the number of incorrect sentences by the number of obligatory contexts.

Table 4.3. Past Tense: Percentage of Partially Correct and Incorrect Sentences

Participant # -prof. level	Verb		# of sentences
	# of PC	# of IC	
1-3	0	70	10
2-4	0	70	10
3-4	0	66.6	9
4-2	16.6	50	6
5-2	0	50	10
6-5	0	50	10
7-5	0	40	10
8-4	0	62.5	8
9-4	12.5	0	8
10-3	0	77.7	9
11-3	22.2	0	9
12-6	28.5	42.8	7
13-5	12.5	0	8
14-5	11.1	55.5	9
15-3	0	87.5	8
16-3	0	33.3	9
17-4	11.1	55.5	9
18-4	0	44.4	9
19-5	0	57.1	7
20-5	0	66.6	9

(Note: IC: incorrect, PC: partially correct, Oblig. Cont.: Obligatory Contexts)

As Table 4.3 presents, the learners did not mark past tense in the context where past tense should be used. The number and percentage of partially correct sentences was relative small.

Furthermore, non-targetlike usage was coded in terms of error types and percentage. A total of 95 errors were made in past tense. The distribution of error type across three versions of tests is summarized in Table 4.4.

Table 4.4. Past Tense: Error Types in Oral Test

ERROR TYPE	FREQUENCY	PERCENTAGE
T1: No past tense marking	77	81.05%
T2: No marking on auxiliary	4	4.21%
T3: Regular marking on irregular verb	0	0%
T4: Double marking	0	0%
T5: Marking on auxiliary and verb	0	0%
T6: Mismarking on auxiliary	0	0%
T7: Replacement	9	9.47%
T8: Other (future marking, infinitive)	5	5.26%
TOTAL	95	100%

As seen above, most of the errors were in the use of present tense to mark past tense. Error type T1, T2, T7and T8 occurred evenly across learners' proficiency levels. Figure 4.2 presents the four error types in levels 3, 4, and 5. Due to the small number of participants in levels 2 and 6, those levels were excluded from the illustration shown in Figure 4.2.
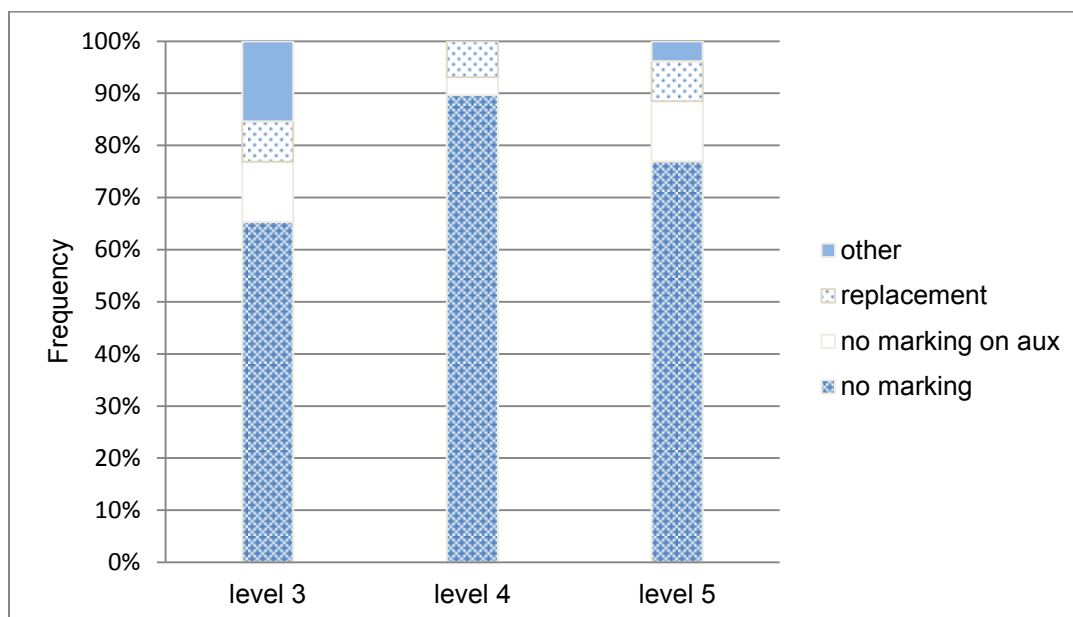
Figure 4.2. Error types with Learners' Proficiency Level

As Figure 4.2 illustrates, no marking was the most common error type; the other three types of errors stayed with similar proportion across levels. In no marking on auxiliary verbs, learners across all proficiency levels used the present auxiliary verbs including *don't, doesn't* + present tense verbs, instead of *didn't*. No participants in this study produced regular marking on irregular verbs, double marking, or marking on auxiliary and verb, and mismarking on auxiliary as in Adams (2004)'s study.

The mean error rate of past tense based on scoring across proficiency levels was 53%. The distribution of mean error rates and proficiency level is summarized in Table 4.5[11].

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[11] One participant from level 3 and one participant from level 6 were not included due to recording difficulties.

Table 4.5. Past Tense: Mean Error Rate and Proficiency Level

Proficiency level	# of participants	Mean error rate	S.D
level 2	2	0.54	0.05
level 3	5	0.56	0.32
level 4	6	0.52	0.24
level 5	6	0.48	0.22
level 6	1	0.57	N.A
TOTAL	20	0.53	0.20

Since the number of learners from levels 2 and 6 participating in this study was extremely small, the error rate may not have reflected the representativeness in these levels and thus those levels were excluded from further consideration. Considering only three levels 3, 4, and 5, the error rate of past tense appeared to decrease as proficiency level increased, but no statistical difference was found among the groups (F (1,16)= 0.30, *p*=.59). Overall, the error rate of past tense was similar across proficiency level 3, 4, and 5. In sum, considering error types and mean error rates in learner's oral production, all learners tended to use present tense to refer to events in the past tense and learners' productive skills did not necessarily relate to learners' proficiency levels.

4.2.3 Written Test: Past tense

A written test as well as oral test was given to the learners in order to evaluate learners' receptive knowledge of past tense forms. In the written test, participants indicated whether a particular sentence was or was not grammatical.

4.2.3.1 Materials

Three versions of the written test were developed targeting past tense. One of the versions of the test was given to each learner. The written tests were operated using DMDX. DMDX is a display software used to measure responses and response time to visual stimuli. The questions for each version of the diagnostic test were automatically randomized. Each

version of the test had twelve questions with the same number of correct and incorrect sentences. The ungrammatical questions were created based on the error types found in the previous studies (Adams 2004; Dulay, Burt & Krashen 1982; McDonough 2001). Table 4.6 illustrates the summary of ungrammatical past tense items.

Table 4.6. Past Tense: Summary of Ungrammatical Items in Exp. 1

Test Version	Verb Type	Error Type (# of questions)	Example
A	Regular	No marking (2)	play
	Irregular	Double marking (2)	wroted
	Aux	Double marking on Aux (2)	did not received
B	Regular	No marking (2)	Play
	Irregular	No Marking (2)	write
	Aux	No marking on Aux (2)	does not receive
C	Regular	No marking (2)	play
	Irregular	Regular marking (2)	writed
	Aux	Mismarking on Aux (2)	does not received

All sentences were coded in terms of correct and incorrect form. Incorrect form was further coded in terms of error types.

4.2.3.2 Scoring: Past Tense

The written test was scored as follows: zero points were awarded for grammatical form and one point was awarded for ungrammatical form.

4.2.4 Results of Written Test

The written test was scored by correct form or incorrect form. Before presenting the mean error rates in three tests, ANOVA was first conducted in order to verify whether the three versions of the tests were similar. The difference between the three versions of the tests was not significant, $F (1,20)=1.47$, *p*=.23. The written test was calculated into mean error rates of past tense. Mean error rate of past tense was 26.1% and SD was 21.5. The items of past tense

were further calculated in terms of grammaticality. The mean error rate of grammatical and ungrammatical items on past tense is given in Table 4.7.

Table 4.7. Past Tense: Error Rate of Grammaticality

	Past tense	
	grammatical	ungrammatical
Mean	0.196	0.325
S.D.	0.175	0.254

As Table 4.7 shows, learners made more errors when given ungrammatical sentences than when presented with grammatical sentences. The mean error rate in past tense was 19.6% for grammatical items and 32.5% for ungrammatical items. The learners answered the grammatical items correctly, but often thought the ungrammatical items were grammatical. In addition, in order to determine to what extent the learners could accurately distinguish grammatical items from ungrammatical items, d-prime (d') was used. The d-prime (d') is used to measure the difference between 'correct judgment[12]' and 'misjudgment[13]' in written items. The higher the d', the more the learners are clearly able to distinguish grammatical items from ungrammatical ones. The d' prime of past tense was 1.31. Therefore, it can be said that the learners were fairly able to tell grammatical items from ungrammatical items; the learners had a considerable knowledge of past tense.

For further analysis, mean error rates were calculated by the learners' proficiency level. Table 4.8 shows the mean error rates of past tense across levels.

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[12] Correct judgment refers to a case when a grammatical item is correctly identified by the learner.

[13] Misjudgment refers to a case when an ungrammatical item is incorrectly identified by the learner. That is, it applies to a case when the learner says or judges "the sentence is grammatical" when a sentence given is ungrammatical.

Table 4.8. Past Tense: Mean Error Rates on Learners' Levels

Proficiency level	# of participants	Past tense
level 2	2	0.208
level 3	6	0.263
level 4	6	0.347
level 5	6	0.236
level 6	2	0.125

As Table 4.8 shows, the error rate of past tense ranged from 12.5% to 34.7%. Since only two learners participated in level 2 and two in level 6, the error rates of those levels were excluded from further consideration. Considering only levels 3, 4, and 5, surprisingly, the error rates on the written test were the highest in level 4. However, despite the unexpectedness in level 4, no significant difference was found in level 3, 4, and 5, $F(2, 33)=0.73$, $p=.48$. Overall, this pattern shows more likely a "U-shape development", indicating that learners in level 4 were confused with usage of past tense and may need time to acquire accurate morphology of past tense.

Furthermore, mean error rates of grammaticality (e.g., grammatical sentence, ungrammatical sentence) were sorted by the learners' levels. Table 4.9 shows the mean error rates of grammatical and ungrammatical items across levels.

Table 4.9. Past Tense: Mean Error Rates of Grammaticality

Proficiency level	# of participants	Past tense		d-prime
		Grammatical	Ungrammatical	
level 2	2	0.083	0.333	1.82
level 3	6	0.277	0.250	1.27
level 4	6	0.222	0.472	0.84
level 5	6	0.166	0.305	1.48
level 6	2	0.083	0.166	2.36

As Table 4.9 shows, the learners often made errors by accepting ungrammatical items as grammatical items. When comparing levels 3, 4, and 5, the error rate of grammatical past tense items decreased from 27.7% to 16.6% and the error rate of ungrammatical items of past tense ranged from 25.0% to 47.2%. The statistical analysis showed that no difference was found in proficiency levels, $F (2,15)=.82$, $p=.45$ and no difference in grammaticality, $F (1,15)=2.38$, $p=.14$. These results indicate that the learners' receptive skills did not develop as their proficiency level increased.

Even though there was no significant difference in learners' proficiency levels, it is worthy to note that the learners from level 4 showed higher error rates than the learners from any other levels, showing d-prime 0.84. This figure indicates that the learners from level 4 had a more limited knowledge of past tense than the learners from any other level. A possible reason for the high error rate in level 4 may be from the recency of exposure. In ESL classrooms, past tense is generally taught at the beginning of the curriculum due to the high frequency of past tense in interaction. Thus, learners in level 2 and 3 may have learned past tense not that long ago and may have had recent massive exposure in learning past tense, showing lower error rates. In contrast, learners in level 4 may have learned past tense previously but they may not have been exposed recently to learning past tense as much as learners in level 2 and 3. Less

exposure to past tense may have led to a higher error rate in level 4. The overall tendency indicate that the learners from level 3, 4, and 5 had not fully internalized the grammar in past tense and tended to take ungrammatical sentences as grammatical ones.

4.2.5 Comparison of Oral and Written Tests for Past Tense

On the oral test, a total of 174 sentences elicited from the learners were analyzed. The mean error rate of past tense verbs approached 53%. The most common error type was 'no past tense marking'. The learners simply expressed the past event as present tense. The written test showed a 26% mean error rate of past tense.

When comparing the two tests, there were some differences between the oral and written tests. First, the results show that the learners' receptive skill was different from their productive skill. The error rate of past tense on the oral test was higher than on the written test. The learners had a fairly greater knowledge of past tense but showed poor performance in the oral test. This indicates that reception occurs before production in learning. It also suggests that the learner may need time to practice past tense to reduce the gap between reception and production. Second, even though there was no significant difference in proficiency levels, the participants from level 4 recorded higher error rates than the participants in any other level in the oral and written tests. As explained earlier, the learners in level 4 may show "U-shaped learning", which is a common feature of human cognition. "U-shaped learning" involves three stages such as good performance at initial stage, poor performance at middle stage, and good performance at final stage. This pattern was reflected on the oral and written tests; the error rates were low in level 2 and 3, high in level 4, and back to low in level 5. This may indicate that learners in level 4 experienced a stage of disorganization to achieve a complex stage of learning past tense. Third, in the oral test, even though the learners correctly recognized that 'no marking' of past tense was not grammatical on the written test, they produced 'no marking' in past tense context as the most common error on the oral test. This tendency shows that past tense has low saliency. The learners frequently used adverbial phrases 'yesterday' or 'in 1999'

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to mark past tense in the oral test; using a present tense verb in a past tense context with an adverbial phrase does not prevent understanding. Adverbial phrases allowed the learners to express past tense without marking on verbs. In sum, the oral and written tests indicate that the learners' morphological rules were not completely internalized and were not developed as their proficiency level increased.

<div align="center">4.3 Relative Clauses</div>

4.3.1 Oral Test: Relative Clauses

In addition to past tense, relative clauses were tested as a second linguistic target. As in past tense, oral and written tests were given. This section first discusses the oral test. The participants' responses from the oral test were recorded, transcribed, and analyzed in order to determine the appropriate levels of participants for Experiment 2.

4.3.1.1 Transcription and Coding

All of the data produced orally during the oral test was orthographically transcribed by the researcher and a native speaker of English. Any parts which were unintelligible were excluded for analysis and coding. The data was coded by the researcher and a second rater. Due to difficulties with the recording equipment, one participant's results were not fully recorded and the results were not included in the oral test analysis.

4.3.1.2 Interrater Reliabiity

Interrater reliability was evaluated for the linguistic target, relative clauses. The second rater was a native speaker of English, who coded 50% of the data of the test. In order to measure the accuracy in rating between the two raters, Krippendorff's alpha was employed and the inter-rater reliability was 0.95 for transcription and 0.90 for coding of error types and scoring.

4.3.1.3 Materials

Three versions of the oral test were developed targeting relative clauses. One of the versions of the test was given to each learner. The relative clauses oral test asked the learners

to listen to a description of two similar-looking pictures containing colored stars and then to describe one of the pictures.

4.3.1.4 Coding, Scoring and Analysis: Relative Clauses

Three versions of the oral test were developed targeting relative clauses. One of the versions of the test was given to each learner. The relative clauses oral test asked the learners to listen to a description of two similar-looking pictures containing colored stars and then to describe one of the pictures.

4.3.1.4.1 Coding, Scoring and Analysis of Subject RCs

This study adapted coding of subject RCs as found in previous studies. The most common error types of subject relative clauses found in previous studies are given in Table 4.10.

Table 4.10. Subject RCs: Error Types (Adapted from Ellis 1994)

ERROR TYPE	DESCRIPTION	EXAMPLE
SUB1	No use of relative pronoun	That is a museum *is* in the middle of the town.
SUB2	use of ordinary pronoun	'I got a friend *he* speaks Spanish'
SUB3	incomplete form	'the boy is….'
SUB4	pronominal copy	'I know the man who *he* coming'

Based on the error types of subject RC presented in Table 4.10, the error types of subject RC was scored. Scoring was based on existence of error in the sentence. Targetlike usage was awarded zero points since there was no error and non-targetlike usage was awarded either a half point or one point. As in the analysis of past tense, not all error types were scored in the same way. Error type was scored with basis on felicity as an answer and use of relative clauses. Error types SUB1 to SUB3 were awarded one point since it was assumed that learners did not recognize the need to use relative clauses in the context where they were asked to combine two sentences into one sentence. Error types SUB4 was awarded a half point since the learners

recognized the need for relative clauses even though their usage were not grammatical. The coding scheme for subject relative clauses is given in Figure 4.3.
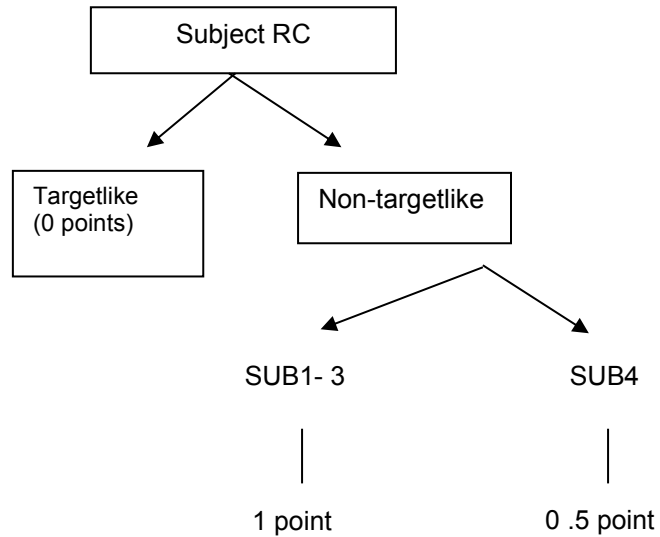
Figure 4.3. Scoring for Subject RCs

Based on this coding and scoring, there were a total of seventeen errors found in the subject relative clauses with two types: no use of relative pronoun and incomplete form in Table 4.11.

Table 4.11. Subject RCs: Frequency of Error Types

ERROR TYPES	FREQUENCY	PERCENTAGE
SUB1: no use of relative pronoun	16	94.1%
SUB2: use of ordinary pronoun	0	0%
SUB3: incomplete form	1	5.88%
SUB4: pronominal copy	0	0%
TOTAL	17	100%

The distribution of error type remained the same across the tests. Sixteen of seventeen sentences were produced without the use of relative clauses. Despite three practice questions prior to the test, participants still did not feel any need to use relative pronoun to combine the

two sentences into one sentence. Rather, they just tried to describe what they heard as declarative sentences rather than involving some syntactic movement in the sentence. One sentence was not fully completed. No participants used the ordinary pronoun or pronominal copy. The predominant error of 'no use of relative pronoun' indicates that learners' knowledge about relative clauses was quite limited and not developed fully.

4.3.1.4.2 Coding, Scoring and Analysis of Object RCs

The previous literature has only limitedly identified the common error types of object RCs, and thus no specific error types of object relative clauses were assumed. Instead, a coding scheme of object RCs was developed from the data obtained from this study. Identifying error types of object RC elicited in the current study was an essential step in that it allowed the data obtained in the diagnostic test as well as the data elicited in Experiment 2 to be codable and analyzable. In addition, coding of errors in object RC would provide a guideline for future research on object RC.

While no specific error types of object RC were predicted, this study attempted to follow a similar coding scheme as found in subject RC to maintain the coding consistently. There were five error types found. The description and example of error types was presented in Table 4.12.

Table 4.12. Object RCs: Error Types

ERROR TYPE	DESCRIPTION	EXAMPLE
OBJ1	inversion of subject and verb	the cap that is wearing the woman
OBJ2	no use of relative pronoun	the one man is pulling a bag
OBJ3	misuse of antecedent	the bunny who is holding the carrot (targeted sentence: *the carrot that the bunny is holding*)
OBJ4	incomplete sentence	the woman…
OBJ5	use of passive sentence	the bag that is pulling by woman

As Table 4.12 presents, error type OBJ1 'the cap that is wearing the woman' was coded when learners produced the sentence with inversion of subject and verb. OBJ2 was coded when

learners produced a declarative sentence without using relative pronoun in the context where they were asked to combine two sentences into one sentence. OBJ 3 was coded when learners produced sentences with a wrong antecedent. For example, some learners produce the subject RC 'the bunny who is holding the carrot' as opposed to a targeted sentence 'the carrot that the bunny is holding.' OBJ 4 was coded when the learner gave up producing complete sentences, and OBJ 5 was coded when learners produced subject RC. Some participants did not employ the correct past participle form, but these were coded as the use of passive sentence as long as the participants attempted to use the preposition 'by + subject' to make the sentences passive (e.g., the carrot that is holding by the rabbit).

Scoring followed a similar scheme as found in subject RC. Error type was scored with basis on felicity as an answer and use of relative clauses. Error types OBJ1-4 were different from OBJ 5 in that error types OBJ 1-4 are infelicitous although some sentences of error types OBJ 1-4 are syntactically acceptable. For example, error type OBJ1 *the cap that is wearing the woman* changes the thematic role of sentence, even though it is syntactically acceptable. Thus, on the basis on the felicity of sentence meaning, one point was awarded in error type on error types OBJ 1-4, 'inversion of subject and verb', 'no use of relative pronoun', 'misuse of antecedent', and 'incomplete sentence'. A half point was awarded in error type OBJ 5, 'use of passive sentence'. For example, in the process of eliciting object RC, some participants used the passive form (e.g., the carrot that is held by a rabbit, as opposed to the carrot that a rabbit is holding), producing subject RC. Even though a passive sentence is completely grammatical, it was awarded a half point since the participants were instructed not to use passive sentences and practiced creating a couple of object RCs using active sentences to make sure that they understood active sentences before the test started. Thus, using a passive sentence was considered to be a learners' avoidance strategy. The scoring scheme for object relative clauses is given in Figure 4.4.

```
                        ┌──────────────────┐
                        │     Object RC     │
                        └──────────────────┘
                         ↙                ↘
          ┌──────────────────┐    ┌──────────────────┐
          │    Targetlike     │    │  Non-targetlike   │
          │    (0 points)     │    └──────────────────┘
          └──────────────────┘      ↙              ↘
```

Error Type   OBJ1-OBJ4   OBJ5

                      | |

                  1 point   0.5 points

Figure 4.4. Scoring for Object RCs

Based on the coding and scoring of object RC presented above, object RC was analyzed.

There were a total of thirty-six errors made in the object relative clauses illustrated in Table 4.13.

Table 4.13. Object RCs: Frequency of Error Types

ERROR TYPE	FREQUENCY	PERCENTAGE
OBJ1: inversion of subject and verb	8	22.8%
OBJ2: no use of relative pronoun	12	34.2%
OBJ3: misuse of antecedent	3	8.57%
OBJ4: incomplete sentence	2	5.71%
OBJ5: use of passive sentence	10	28.5%
TOTAL	35	100%

As Table 4.13 illustrates, the learners made most of errors in error types OBJ1, OBJ2, and

OBJ5. As the high frequency of OBJ 2 shows, some learners did not use relative pronoun at all

in the context where they were asked to combine two sentences into one sentence, indicating

that they did not know how to create object relative clauses. Error type OBJ1 shows that some

learners did not use object RCs correctly by changing the order of subject and verb; the learners created a sentence in a similar way as subject relative clauses in that the verb appeared after the relative pronoun (e.g., the cap that is wearing the woman). This error type reflects that the learners had difficulty in organizing object RCs correctly. Error type OBJ5 was coded when some learners did not produce object RC, but converted object RC to subject RC by making passive sentences. When compared to subject RCs, not only the number of error types but also the number of errors increased. The higher number of error types and errors indicates that the learners were confused of the usage of object RCs and avoided using object RCs. Overall, their knowledge about object RCs was more limited than subject RCs.

4.3.1.4.3 Coding, Scoring and Analysis of Oblique RCs

As with object RCs, the previous literature has not identified the common error types of oblique RCs and thus no specific error types of oblique relative clauses was predicted. This study attempted to follow a similar coding scheme as found in subject RCs to maintain the coding consistently. There were six error types found. The description and example of error types is presented in 4.14

Table 4.14. Oblique RCs: Error Types in Oral Test

ERROR TYPE	DESCRIPTION	EXAMPLE
OBL1	inversion of subject and verb	The file that has the man
OBL2	no use of relative pronoun	the dog is sitting on the sofa
OBL3	misuse of antecedent	the dog who is sitting in the sofa (targeted sentence: *the sofa that the dog is sitting on*)
OBL4	use of passive sentence	the baby who is being cared by a woman
OBL5	subject relative sentence	a woman that is talking with a man (targeted sentence: *the man that the woman is talking with*)
OBL6	insertion of (pro)noun	the goldfish that one man see the goldfish

As Table 4.14 presents, some error types that occurred in object RCs appeared again in oblique RCs; thus, OBL1, OBL 2, OBL3, OBL4, and OBL6 were coded in the same manner as object RCs. Error type OBL 5 was coded when the participants produced subject relative clauses instead of oblique relative clauses (e.g., a woman that is talking with a man as opposed to a man that the woman is talking with). Error type OBL 6 was coded when the participants inserted an unnecessary pronoun (e.g., the goldfish that one man see the goldfish as opposed to the goldfish that one man looks at).

In scoring, one point was awarded in case of error types OBL 1-3, 'inversion of subject and verb', 'no use of relative pronoun', 'misuse of antecedent' due to infelicity as an answer. A half point was awarded in error types OBL 4-6, 'use of passive sentence', 'subject relative clauses', and 'insertion of pronoun' due to partial felicity as an answer. For example, in the process of eliciting oblique RCs, some participants used the passive form (e.g., the baby who is being cared by a woman, as opposed to the baby that a woman is taking care of), producing subject RC. Again, even though production of passive sentence and subject relative clause is completely grammatical, it was awarded a half point since it was considered to be a learners' avoidance strategy. The scoring scheme for object relative clauses is given in Figure 4.5.
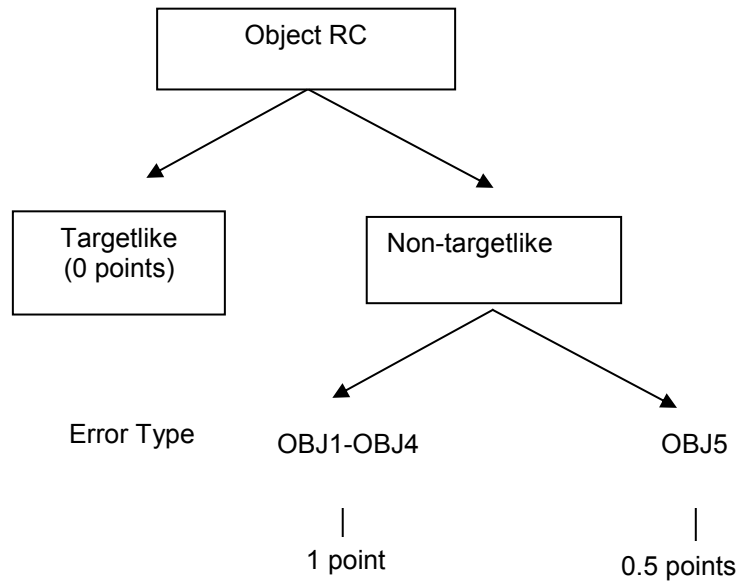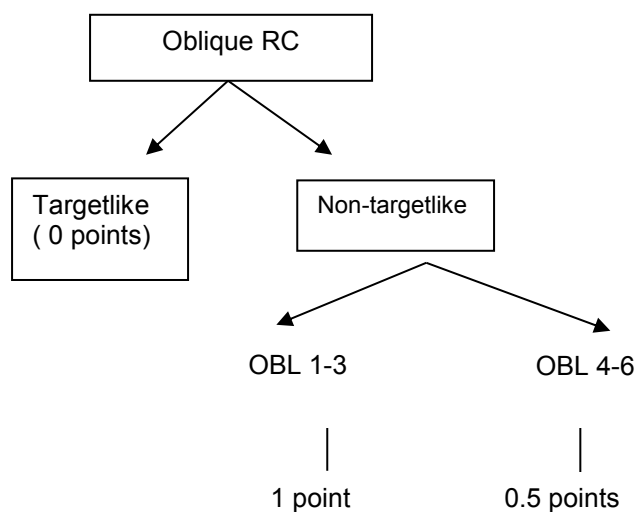

Figure 4.5. Scoring for Oblique RCs

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Given this consideration of coding and scoring, there were a total of thirty errors found in the object relative clauses illustrated in Table 4.15.

Table 4.15. Oblique RCs: Frequency of Error Types

ERROR TYPE	FREQUENCY	PERCENTAGE
OBL1: inversion of subject and verb	4	13.33%
OBL2: no use of relative pronoun	13	44.3%
OBL3: misuse of antecedent	5	16.66%
OBL4: use of passive sentence	3	10.00%
OBL5: subject relative sentence	4	13.33%
OBL6: insertion of (pro)noun	1	3.3%
TOTAL	30	100%

As Table 4.16 depicts, the learners made the most errors in error type OBJ2. Again, some learners did not use relative pronoun at all in the context where they were asked to combine two sentences into one sentence.

Taken all together, this section identified error types and frequency of three RCs. Identifying error types of three RCs with frequency deserves attention for several reasons. First, the frequency of errors suggests more specifically where learners had more difficulty in constructing RCs. In addition, the frequency across three types of RCs shows which type of RC is easier or harder to learn. Of the three types of RCs, object RCs showed the highest error rates. These patterns indicate that learners had more difficulty in producing object RCs than subject RCs. The frequency of error was similar in object and oblique RCs even though the frequency of object RCs was slightly higher than oblique RCs.

Second, the number of error types suggests the difficulty of learning RCs. For example, there were four types of error in subject RCs, five types in object RCs and six types in oblique RCs. The high number of error types may suggest that learners' sensitivity was weak in oblique RCs. Specifically, inversion of subject and verb was formed with 'antecedent + relative pronoun + verb + subject', which has the same syntactic structure with subject RCs. The production of

subject and verb inversion suggests that learners had knowledge of subject RCs but had only rudimentary knowledge of object and oblique RCs with regard to syntactic movement. Third, since Experiment 2 would involve the same linguistic targets from a developmental point of view, coding error types in this chapter will be a guideline for Experiment 2. Also, coding errors would allow consistent coding in Experiment 2.

4.3.1.5 Results of Oral Test

Of the188 relative clauses, 62 were subject RCs (45 grammatical, 1 partially grammatical, and 16 ungrammatical), 63 were object RCs (28 grammatical, 10 partially grammatical, and 25 ungrammatical), and 63 were oblique RC (33 grammatical, 8 partially grammatical, and 22 ungrammatical). Of these 188 sentences, 106 sentences were grammatical, nineteen partially grammatical, sixty three sentences were ungrammatical. Table 4.16 summarizes the number of grammatical, partially grammatical, and ungrammatical sentences in terms of relative clause types by each participant.

Table 4.16. RCs: The Number of Partially Grammatical and Incorrect Sentences

	Subject RC	Object RC	Oblique RC
Partial correct	1	9	8
Incorrect	16	22	22
TOTAL	17	31	30

(Note: PG: partially grammatical, IC: incorrect)

As Table 4.16 shows, ungrammatical sentences were produced the least in subject RC. This pattern reflects that learners had a greater knowledge of subject RCs but only rudimentary knowledge on object RCs; forty five sentences were grammatical in subject RCs whereas twenty-two sentences were grammatical in object RCs.

In addition, the result of relative clauses was also analyzed in terms of the error rate across proficiency levels. The mean error rate of RC across levels was 38%. The distribution of mean error rate and proficiency level is summarized in Table 4.17.

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Table 4.17 RCs: Mean Error Rate and Proficiency Level

Proficiency level	# of participants	Mean error rate	S.D.
level 2	2	0.87	0.17
level 3	6	0.37	0.36
level 4	6	0.45	0.34
level 5	6	0.24	0..13
level 6	1	0.00	N.A
TOTAL	21	0.38	

As Table 4.17 shows, the mean error rate decreased as the proficiency level increased, except in level 4. This tendency indicates that the learners in level 2 may have had a floor effect with an error rate above 87% and the learners in level 6 did not have any error in producing RCs. The learners' proficiency level with floor and ceiling effect suggest that the learners with these levels reach the bottom or the top of distribution and thus may not have enough room for improvement in treatment. Since the goal of this diagnostic test was to determine an appropriate level for Experiment 2, these results indicate that these levels should be excluded.

The RCs elicited were also analyzed in terms of the type of RCs: subject, object, and oblique. The mean error rates differed over the three types of RCs, with mean error rates of subject, object, oblique RCs as 26.1%, and 47.6%, and 41.2%, respectively. The distribution of mean error rate in three RCs is presented in Table 4.18.

Table 4.18. RCs: Summary of Error Rates

	Subject RCs	Object RCs	Oblique RCs
Mean error rate	0.261	0.476	0.412

As seen in Table 4.18, the subject RCs had the least errors, and object RCs had the most errors in the oral production test. A repeated ANOVA was conducted with type of relative clauses as the independent variable and mean error rate as the dependent variable. This analysis did not reach a significant main effect of target type but almost approached significance

F (2, 40) =2.58, *p*=.08, indicating that error rates of three RCs may be different. Planned comparisons shows that the difference between subject RCs and object RCs closely approached the significance, F (1, 20)=3.53, *p*=.07. Difference between subject RC and oblique RC was found, F (1, 20)=1.81, *p*=.19, and between object RC and oblique RC, F(1,20)=1.56, *p*=.22. This tendency may support Noun Phrase Accessibility Hypothesis (NPAH). According to NPAH, the subject relative clauses were acquired first, object relative clauses and oblique relative clauses at the similar stage even though the error rate of object RCs was slightly higher than the one of oblique RCs. This mean error rates shows difficulty in learning object RC.

An analysis was also conducted to compare the mean error rates in relation to proficiency levels. Table 4.19 describes the mean error rates in proficiency levels.

Table 4.19. RCs: Mean Error Rates in Proficiency Levels

Proficiency level	Subject RC	Object RC	Oblique RC
level 2	0.50	1.00	1.00
level 3	0.16	0.44	0.50
level 4	0.30	0.58	0.47
level 5	0.27	0.30	0.13
level 6	0	0	0

As seen in Table 4.19, as proficiency level increased, error rates generally decreased. Each level showed a similar tendency: subject RCs showed the lowest error rate, oblique RCs in the middle, and object RCs the highest error rate. The reason for a lower error rate of oblique RCs than object RCs was from the fact that the most common error of oblique RCs, omission of preposition (e.g., the file that the man is searching instead of the file that the man is searching for), was excluded since it was related to the problem of verb subcategorization. Therefore, omission of preposition was excluded from the error type of oblique RC and was considered as correct, which in turn resulted in a lower error rate of oblique RCs.

Mean errors were analyzed by subjects using a 3X3 ANOVA, with RC types as a repeated measure and proficiency level (3,4, and 5) as a non-repeated measure. This analysis revealed no significant difference in target type, $F_{(2,32)}=1.79$, $p=.18$, nor a significant difference between the types of RCs and proficiency level, $F_{(2,32)} =1.73$, $p=.19$. Thus, considering error types and mean error rates in learner's oral production, the intermediate level learners (level 3, 4, and 5) would be the appropriate level for Experiment 2. The analysis of the written tests is discussed in the next section.

4.3.2 Written Test: Relative Clauses

As mentioned in 0, written tests as well as oral tests were given to the learners in order to determine learners' receptive knowledge of relative clause forms.

4.3.2.1 Materials

The written tests were operated using DMDX. Three versions of the written test were created and one of the versions was given to each learner. The questions for each version of the diagnostic test were automatically randomized. The written test included only two choices: "the sentence sounds good" or "the sentence sounds bad" with four subject, four object, and four oblique relative clauses in each version. The ungrammatical sentences were originally created based on the common error type explained in 0. As mentioned earlier, the error types of object and oblique RC were not identified clearly in previous studies. Even though the four error types of subject and object RCs are illustrated in Izumi (2003)'s study, including pronominal copy, nonadjacency, incorrect relative marker morphology, and inappropriate relative marker omission, the only error type related to this study was pronominal copy. Thus, all types of relative clause questions were created with consideration of pronominal copy. Moreover, since object and oblique relative clauses allow the omission of relative pronoun, half of the object and oblique relative clauses were formed with existence of relative pronoun and the other half were formed with omission of relative pronoun. Considering the fact that object relative pronoun can be spelled in either *who* or *whom*, even though *whom* is likely to be prescriptive, it was given as

a form of *who(m)*. The questions were automatically randomized. The Table 4.20 illustrates the summary of ungrammatical RC items.

Table 4.20. RCs: Summary of Ungrammatical Items in Exp. 1

Test Version	RC Type	Error Type (# of questions)
A	Subject RC	no RC (2)
	Object RC	with pronoun copy without RP (2)
	Oblique RC	with pronoun copy with RP (2)
B	Subject RC	use of pronominal copy (2)
	Object RC	with pronoun copy with RP (2)
	Oblique RC	with pronoun copy without RP (2)
C	Subject RC	use of regular pronoun (2)
	Object RC	use of pronoun copy without RP (2)
	Oblique RC	use of pronoun copy with RP (2)

(RP: Relative Pronoun (e.g., who, which, that etc.))

4.3.2.2 Scoring: Relative Clause

The written test was scored in terms of error: zero points (meaning no error) were given for grammatical form, and one point was given for ungrammatical form.

4.3.3 Results of Written Test

The results were analyzed in terms of mean error rates, grammaticality, error types, and proficiency levels. Before presenting mean error rates in three tests, ANOVA was first conducted in order to verify whether the three versions of the tests were similar. The three versions of tests were not significantly different, F (1, 20)=0.57, *p*=.45. Table 4.21 presents the descriptive statistics on mean error rates of relative clauses.

Table 4.21. RCs: Descriptive Statistics

	Relative clauses
Mean	0.424
S.D	0.145

As Table 4.21 presents, mean error rates of relative clauses was 42.4%. The relative clauses were further calculated in terms of grammaticality (grammatical/ungrammatical sentences). The mean error rate of grammatical and ungrammatical items on relative clauses is given in Table 4.22.

Table 4.22. RCs: Descriptive Statistics of Grammaticality

	Relative clause	
	grammatical	Ungrammatical
Mean	0.219	0.628
S.D.	0.195	0.246

The mean error rates of grammatical items and ungrammatical items were 21.9% and 62.8%, respectively. The error rate of ungrammatical items was higher than the error rate of grammatical items. The d-prime (d') was 0.53, measuring the difference between 'correct judgment' and 'misjudgment' regarding grammatical items. This relatively small d-prime indicates that the learners thought that ungrammatical items were grammatical and could not clearly identify whether a sentence was grammatical or ungrammatical. Overall, it suggests that the learners had difficulty in telling grammatical items from ungrammatical items and their knowledge of relative clauses was quite limited.

For further analysis of relative clauses, mean error rates of relative clauses were calculated based on the learners' levels as shown in Table 4.23. The data was sorted by proficiency level.

Table 4.23. RCs: Mean Error Rates based on Learners' Levels

Proficiency level	# of participants	Relative Clause
level 2	2	0.541
level 3	6	0.458
level 4	6	0.416
level 5	6	0.333
level 6	2	0.500

As seen above, the error rates of relative clause ranged from 33.3 % to 54.1%. Since only two learners participated in level 2 and two in level 6, the error rates from these levels were excluded from further consideration. The error rate of relative clauses in level 3 was higher than level 4 and the learners' receptive knowledge slightly improved as the proficiency level increased but no statistical difference was found, $F(1,20)=1.71$, $p=.20$.

Mean error rates of grammaticality (e.g., grammatical sentence, ungrammatical sentence) were sorted by the learners' levels. Table 4.24 shows the mean error rates of grammatical and ungrammatical items across levels.

Table 4.24. RCs: Mean Error Rates of Grammaticality based on Learners' Levels

Proficiency level	# of participants	Relative clause		d-prime
		Grammatical	Ungrammatical	
level 2	2	0.416	0.666	-0.22
level 3	6	0.194	0.722	0.27
level 4	6	0.305	0.527	0.44
level 5	6	0.111	0.555	1.08
level 6	2	0.166	0.833	0

When comparing levels 3, 4, and 5, the error rates of relative clause were not reduced in the order of proficiency level. The learners in level 4 had a higher error rate on grammatical items

than level 3 and level 5. The learners in level 4 thought that grammatical items were ungrammatical. When comparing levels 3, 4, and 5, the error rates of ungrammatical items of relative clauses ranged from 52.7% to 72.2%. The statistical analysis showed that no difference was found in proficiency levels, F (2,15)=1.10, p=.35 but there was a difference in grammaticality, F (1,15)=25.05, p<.001. These results indicate that the learners' receptive skills did not develop as their proficiency level increased. High error rate of ungrammatical item shows that the learners quite often made errors of ungrammatical items by accepting ungrammatical items to be grammatical items. In addition, the learners in level 4 had a major problem in judging grammatical sentences as ungrammatical. In analysis of these complex patterns, D-prime figures provide a clearer picture. When looking at d-prime, d-prime figures went up as proficiency level increased in level 3, 4, and 5. These figures indicate that learners' knowledge was getting better; they could better identify grammatical items and ungrammatical items as their proficiency level increased. Even though a high error rate on grammatical items in level 4, the d-prime in level 4 was higher than level 3 and lower than level 5. Overall, the results of the test indicated that learners gain a better knowledge of relative clauses as proficiency level increases; the learners from level 3, 4 had rudimentary knowledge of relative clauses and the learners in level 5 had a greater knowledge of relative clauses.

<u>4.4 Comparison of Oral and Written Tests for Relative Clauses</u>

On the oral test, a total of 188 oral sentences elicited from the learners were analyzed. The results showed that the error rates of subject RCs, object RCs, and oblique RCs were 26.1%, 47.6%, and 41.2%`, respectively. The most common mistake by learners in all three types of relative clause was 'no use of relative pronoun' in oral test. The written test showed that the mean error rate of subject RCs, object RCs, and oblique RCs were 40.9%., 43.1%, and 43.1%, respectively. The learners recognized the grammatical relative clause quite correctly but did not recognize ungrammatical sentences well and accepted them as correct.

Taken all together, the results of the oral and written tests showed both similar and different patterns. First, the mean error rate of the oral test (38.3%) was similar to the written test (42.4%), even though the error rate of the written test was slightly higher. The similar rate in the oral and written tests may indicate that the learners' overall knowledge of relative clause was not well developed. However, unlike object and oblique RCs, the learners' knowledge about subject RCs seems to be somewhat developed already. The error rate of subject RCs on the oral test was even lower than on the written test. This indicates that the learners were easily confused by the error types on the written test and thought that ungrammatical items were also acceptable. A possible reason for the lower error rate in oral test may be that learners may have been exposed to or heard the subject RCs without explicit instruction, having merely positive evidence. Second, the results of oral and written test indicated that the learners' productive and receptive skills on RCs developed as their proficiency level increased. Even though learners in level 4 had a high error rates on grammatical items on the written test, d-prime showed that the learners' receptive skills developed as proficiency level increased. However, the differences of proficiency levels in both tests were not significant. Third, the error rate of subject RCs was the lowest in both tests. However, the error rate of object and oblique RCs showed a somewhat complex pattern. In the oral test, the error rate of oblique RCs was lower than object RC while the error rate of object RCs was equal to oblique RCs. Overall, the oral and written tests indicate that the learners' productive and receptive knowledge on RCs was developed in the subject RCs first.

Recalling that the diagnostic test was given to determine an appropriate level for participant recruitment in Experiment 2, the oral and written tests provided a guideline to select an appropriate level in which the learner's knowledge has room for improvement without having floor and ceiling effects.

4.5 Comparison of Two Linguistic Targets in Diagnostic Tests

In the analysis of the oral test of past tense and relative clauses, a few interesting facts were found. As mentioned in the previous section, past tense was considered to be more easily acquired since marking past tense involves a morphological feature. In contrast, relative clause was hypothesized to be more difficult to learn since marking relative clauses involves a morpho-syntactic feature and thus learners need to figure out the case, agreement, and animacy. However, the results showed that the error rates of past tense in the oral test were higher than RCs, resulting in 53% and 38.3%, respectively. The results may indicate that the processing cost of choosing the correct form in the two linguistic targets is similar. Even though past tense only involves morphological features and is assumed to be easy to acquire, learners may need time to determine the type of verb (e.g., regular and irregular verb), and apply the right rule. On the contrary, relative clauses involves morpho-syntatic features and are assumed to be more difficult to acquire, but the usage of relative clauses is consistent in that, unlike verbs, there are no irregular relative clause forms. Thus, this fact may explain the similar error rates between the two features. Moreover, the error rates of the three types of relative clauses were different. The error rates were the lowest in subject RCs and similar in object RCs and oblique RCs. The error rates indicate that learners have more difficulty in producing accurate sentences of oblique relative clauses, supporting noun phrase accessibility hierarchy (NPAH).

In the analysis of the written tests, a few unexpected facts were found. As mentioned in the previous section, the error rate of past tense was lower that of RCs, resulting in 26.1% (d'=1.31) and 42.4% (d'=0.53), respectively. This tendency is opposite from the results of the oral test. The written test results indicate that the learners had better receptive knowledge of past tense than relative clauses. The items given were furthermore compared in terms of grammatical and ungrammatical items. In particular, the error rates of ungrammatical items in RCs were fairly high, ranging from 52.7% to 72.2%. This shows that the learners did not

distinguish grammatical items of RCs from ungrammatical items of RCs sharply, and thus the learners did not acquire morph-syntactic knowledge of RCs fully.

Taken all together, the appropriate level for Experiment 2 would seem to be level 4 since the learners in level 4 made more than 30% errors in the two linguistic targets. The rationale of choosing a level with around 30% was to remove a possible ceiling effect, as studied by Jeon (2007). The current study also considered a floor effect and thus the level with a fairly high error rate was excluded. Since Experiment 2 involved linguistic development through dyadic repair negotiation, determining the most appropriate level was essential. The learners with too low or too high error rates would not engage in very much repair negotiation since they either already knew the linguistic targets sufficiently or they did not know the linguistic targets at all, and there would be no effective treatment effect. Therefore, in order to avoid possible ceiling and floor effects and to facilitate repair negotiation in Experiment 2, level 4 was chosen as the target subjects for Experiment 2. Levels 3 and 5 were also considered as possible choices. Level 3 was included because they had a higher error rate in relative clauses and would be considered to be less proficient than level 4 even though the error rate was not clearly reduced in order of proficiency levels as expected. However, level 5 was excluded because the level 5 participants recorded 23.5% of errors in past tense.

4.6 Pilot Testing

All treatment and test materials used in Experiment 2 were previously pilot-tested before collecting data in order to determine whether two linguistic targets were appropriately elicited. Six subjects participated in the pilot experiment. The participants were advanced level learners of English or graduate students at the university. Their native languages were Korean or Mandarin. The participants were asked to complete one version of each of the three tasks. All learner interactions were audio-taped. Recording of the interactions was done to examine whether 1) the levels of the tasks were appropriate, and 2) learners could finish a task in 16-17

minutes (Adams 2004). Before and after doing the activities, each dyad engaged in two versions of grammaticality judgment tests as a pre-test and post-test.

The pilot study showed that even advanced learners had difficulty in choosing an appropriate form of past tense. The accuracy rate of past tense on the pilot test between the pre-test and post-test showed no increase, but rather showed a slight decrease of accuracy. The accuracy rate of past tense on the pilot test was 90.6% but was only 88.7% on the post-test. A paired t-test showed that there was no significant difference between pre-test and post-test (p=.68). Since the participants were already advanced learners of English, the effect of repair negotiation was not significant and showed a ceiling effect. However, the accuracy rate of relative clauses showed an increase from the diagnostic test to the post-test. The accuracy rate of relative clauses on the diagnostic test was 75.9% and 88.8% on the post-test even though the paired t-test showed that there was no significant difference between pre-and post-test (p=.20).

Based on the pilot testing, before Experiment 2, a few minor modifications were made to the communication tasks and testing material. Some prompts in the communicative tasks were given to elicit the target forms as exactly as possible.

4.7 Overview of Experiment 2

Experiment 2 focuses on the same two linguistic targets: past tense and relative clauses (RCs). The results of the diagnostic test indicated that the error rates of past tense in the oral test were higher than RCs, resulting in 52% and 38%, respectively. No statistical difference between past tense and RCs was found in the oral test, $F(1,19)$=2.17, p=.15. However, an opposite tendency was found in the written test. The error rate of past tense was lower than that of RCs, resulting in 26.1% and 42.4%, showing statistical difference, $F(1, 21)$=13.90, p<.01. The tendency shows that learners clearly had a better receptive knowledge of past tense than relative clauses, but they had not developed the full knowledge of past tense enough to produce the correct past tense.

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The opposite pattern between oral and written tests may indicate that both targets may have a similar learning difficulty. Thus, Experiment 2 is designed to measure language development of past tense and relative clauses through repair negotiation in a pre-test, post-test, and delayed post-test. Also, Experiment 2 involves two types of tasks to see whether the type of task influences language development. Recalling discussion of Chapter 2, it is hypothesized that task type and repair type should influence the L2 learners' morpho-syntactic development differently. As concluded in Chapter 3, based on the results of Experiment 1, two tasks were chosen to measure the effectiveness of SIR and OIR. A one-way information gap task was chosen as the task for eliciting OIR the most. However, since the frequency of SIR was evenly elicited regardless of types of task, the task that elicited SIR the most was based on the proportion of OIR and SIR in the task. Therefore, a decision-making task was chosen as the task for eliciting SIR the most for use in Experiment 2. It is hypothesized that a decision-making task will lead to morpho-syntactic development more than a one-way information gap task in that the speaker using SIR recognizes a mistake of his/her own utterances and initiates repair by his/her self. The next chapter discusses Experiment 2.

CHAPTER 5

EXPERIMENT 2

5.1 Methods: Experiment 2

Experiment 1 addressed the relationship between task types and repair organization; the results showed that there was a difference in repair negotiation in the three tasks. Specifically, the frequency of OIR was elicited the most in the one-way information gap task and elicited the least in the decision-making task. The frequency of SIR was evenly elicited across the tasks. Therefore, when comparing the percentage of SIR and OIR in the three tasks, the least frequency of OIR led to the highest percentage of SIR in the decision-making task. Experiment 1 compared the frequency and proportion of SIR and OIR in three tasks, but it did not show to what extent language development actually occurred. Thus, in order to measure to what extent L2 learners benefit from repair negotiation, a second experiment was designed. Experiment 2 examined to what extent L2 learners' morpho-syntactic knowledge can be developed through repair negotiation in task-based interaction, and inquired into the effectiveness of repair type on L2 learners' morpho-syntactic development.

5.1.1 Research Design

Experiment 2 was designed to provide answers as to what extent L2 learners' morpho-syntactic knowledge can be improved through repair negotiation in task-based interaction and to what extent development of morpho-syntactic features is influenced by repair or task type. This experiment was similar to Experiment 1 but differed in two ways such that the participants engaged only one task, either one-way information gap task or decision-making task. Each task targeted either past tense or relative clauses that were designed to measure L2 learners'

morpho-syntactic development.

Experiment 2 involved a pre-test, post-test, and delayed post-test design to measure the effects of development of linguistic targets through repair negotiation. Experiment 2 had two experimental groups (Experimental Group A and Experimental Group B). The learners in Experimental Group A engaged in one-way information gap tasks. Experimental Group A was further divided into Group A1 and Group A2. The participants of Group A1 were given a task which targeted past tense; participants of Group A2 were given a task which targeted relative clauses. The learners in Experimental B engaged in decision-making tasks. Group B was also subdivided in the same way. Of the thirty-six participants, twenty-four participants were assigned to Group A: twelve in Group A1 and twelve in Group A2. Twelve participants were assigned to Group B: six in Group B1 and six in Group B2.

The rationale for having a different number of participants in each group comes from the influence of task types on interaction. As shown in Chapter 3, the frequency of OIR was not different between speakers in the decision-making task but the frequency of OIR was different between speakers in the one-way information gap task, with high frequency of OIR by the interlocutor who requested information from the speaker. As discussed in Experiment 1, the difference of frequency indicates that the participants in the one-way information gap task may not equally benefit from the repair negotiation. Given this consideration, to balance the equal number of speaker and listener in the one-way information gap task, it was necessary to assign twice the number of participants as in the decision-making task. The participants in both groups were given a pre-test, a treatment, a post-test, and a delayed post-test.

The independent variables in Experiment 2 were the two linguistic targets (past tense and RC) and the task type (one-way information gap task and decision-making task), and dependent variable was the error rate of two linguistic targets. Figure 5.1 is a summary of Experiment 2.

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┌─────────────────────────────────────────────────┐
│                    Pre-test                      │
│   Written and oral tasks (past tense/relative clauses)│
└─────────────────────────────────────────────────┘
        ┌──────────────────┴──────────────────┐
        ▼                                      ▼
┌────────────────────────┐      ┌────────────────────────┐
│ Experimental Group A   │      │ Experimental Group B   │
│ (one-way information gap│      │ (decision-making task): 6│
│ task) : 12 dyads       │      │ dyads                  │
└────────────────────────┘      └────────────────────────┘
     ┌──────┴──────┐                ┌──────┴──────┐
     ▼             ▼                ▼             ▼
┌──────────┐ ┌──────────┐     ┌──────────┐ ┌──────────┐
│ Group A1:│ │ Group A2: RC│   │ Group B1:│ │ Group B2: RC│
│ Past tense│ │ (6 dyads) │    │ Past tense│ │ (3 dyads) │
│ (6 dyads)│ │          │     │ (3 dyads)│ │          │
└──────────┘ └──────────┘     └──────────┘ └──────────┘
                                    │
                                    ▼
┌─────────────────────────────────────────────────┐
│                   Post-test                      │
└─────────────────────────────────────────────────┘
                                    │
                                    ▼
┌─────────────────────────────────────────────────┐
│                Delayed Post-test                 │
└─────────────────────────────────────────────────┘
```
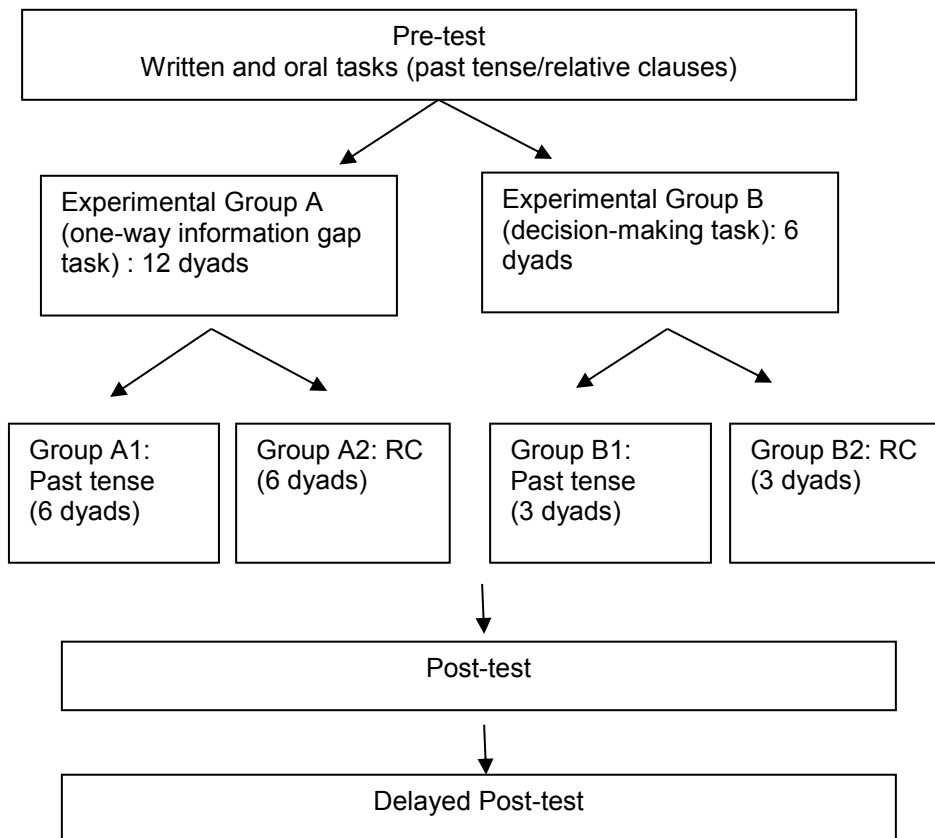
Figure 5.1 Summary of Experiment 2

5.1.2 Data collecting procedure

The participants took a pre-test, a treatment session, a post-test, and a delayed post-test in Experiment 2. Each test asked the participants to listen to the questions and answer based on what they heard or saw; this procedure involved a slight modification from the Diagnostic Test. The learners were asked to create and narrate ten consecutive sentences in the Diagnostic Test. The result of the Diagnostic Test showed that some learners produced the same verb repeatedly in the ten sentences (e.g., I went to the store, I went to the park, etc.). In order to elicit different forms of verbs, the procedure of the oral test was changed slightly and administered in an interactive fashion; each question was given separately and concerned

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different activities that occurred in the past so that the learners could answer in a short sentence, as opposed to asking them to narrate ten sentences consecutively.

The data collection and tests were administered in the same way in the Diagnostic Test. All of the data was collected in a quiet lab at the university. The participants filled in an online background questionnaire before they attended the session. The researcher attended all the tests and treatment sessions to run the experiment and answer any questions. The treatment and all tests completed over both sessions took a total of two hours. The versions of the written test were randomized as well as the order of presentation of the oral tests when given to participants in order to prevent an ordering effect.

The oral and written sections of the pre-test took a total of 30-35 minutes. After both sections were completed, the instructions for the communicative task were given in both oral and written form. The participants in the experimental dyads had 16-17 minutes to complete a task. The participants in the experimental dyad had a longer time than the ones in Experiment 1 since they involved only one type of task and were thought to need more time to pay attention to the linguistic form given. The time limit was set to make all the participants have the same or similar time of interaction across tasks.

After completing the communicative task, the participants were immediately given the post-test. The procedure of the post-test was the same as the pre-test. The learners returned to the lab again two weeks after the immediate post-test to take the delayed post-test. For the delayed post-test participants were not required to return with their partner. Other than that, the procedure of the delayed post-test was the same as the previous tests. All of the oral and communicative activities were audio-taped. The data collection procedure is presented in Table 5.1.

Table 5.1 Data Collection Procedure

Day 1	TREATMENT CONDITION
	Background questions (through an online survey)
	Pre-test
	Treatment
	Post-test
Day 2 (2 weeks later)	Delayed post-test

5.1.3 Treatment tasks

The tasks used for Experiment 2 were communicative tasks, as in Experiment 1. The types of task used were a one-way information gap task and a decision-making task. The selection of the types of tasks was based on the results of Experiment 1. The one-way information gap task was selected for eliciting a greater percentage of other-initiated repair over self-initiated repair, and the decision-making task was selected for eliciting a greater percentage of self-initiated repair over other-initiated repair. One-way information gap task characterizes a unilateral flow of information from information holder to information requester. Thus, other-initiated repair comes naturally from the information requester. In contrast, a decision-making task allows a mutual exchange of information between information holder and information requester, who share the same amount of information. Therefore, participants engage in more self-initiated repair and less other-initiated repair.

Four treatment tasks were created for Experiment 2, two one-way information gap tasks and two decision-making tasks, with each type of task having a linguistic target, either past tense or relative clauses. For each, one task elicited each linguistic target (relative clauses, past tense). All tasks used picture stimuli with a prompt. The one-way information gap tasks asked one participant to describe a picture to his/her interlocutor. The decision-making tasks asked both participants to reach an agreement by exchanging their opinions about pictures with a

prompt and then create sentences together. The description of tasks is illustrated in Table 5.2. The example of treatment tasks are given in Appendix C.

Table 5.2. Treatment Tasks

Type of task	Task	Linguistic target	Description
One-way Information gap	Award ceremony	Past tense	One participant was asked to describe the awardees' personal life using key words and the interlocutor was asked to fill in a timeline chart of each person.
	Draw circles	Relative clauses	One participant was asked to describe the objects drawn with circles and the interlocutor was asked to draw the circle based on what is heard.
Decision-making	Create a sentence	Past tense	Both participants were asked to create a story using key words collaboratively by filling in a timeline chart.
	Create a sentence	Relative clauses	Both participants were asked to create a sentence using key words collaboratively.

All the tasks asked the participants to engage in interaction and focus on form as they completed the task. For example, the 'award ceremony' task was designed to focus on the form of past tense and 'draw a circle' was designed to focus on the form of relative clauses. The procedures and results will be discussed in terms of linguistic targets in the following sections. The descriptions and results of past tense are discussed in Section 5.2., and the descriptions and results of relative clauses are discussed in Section 5.3.

5.2 Past Tense

5.2.1 Participants

Thirty-six students from the English Language Institute at the University of Texas at Arlington participated in Experiment 2. No subject who participated in Experiment 1 was allowed to participate in Experiment 2. The students in intermediate levels (level 3 and 4) of the language institute were targeted since the diagnostic test given in Experiment 1 showed that participants at the intermediate level had been exposed to the two linguistic targets but had not

completely internalized the rules of these two targets. The participants included 20 males and 16 females and represented seven different L1 backgrounds: Chinese, French, Korean, Spanish, Thai, Vietnamese, and Arabic. The length of stay in the U.S. of the participants varied from one month to twenty-four months. All of the participants were equally matched in terms of their proficiency level. The participants were divided into two treatment groups. There was no control group, per se. Instead, half of the participants (eighteen participants) completed a task targeting past tense and the other half (eighteen participants) completed a task targeting relative clauses and thus acted as each other's controls. The demographic information of the participants of the treatment and control groups is summarized in Table 5.33.

Table 5.3. Demographic Information

CHARACTERISTICS	
Age	Mean: 24.9 Range: 18 to 40
Length of stay in the U.S.	Mean: 5.8 months Range: 1 month to 24 months
Gender	Male: 20 Female:16
L1 background	10 Arabic; 6 Chinese, 3 French, 12 Korean, 1 Persian; 2 Spanish; 1 Thai; 1 Vietnamese

5.2.2 Testing Materials

Three versions of the tests were created with the same format and each version was randomly given as pre-test, post-test, and delayed post-test to the participants. The pre-test was given to the participants prior to the treatment task to see to what extent the participants had knowledge of past tense and relative clauses in English and whether the knowledge about these targets was fully internalized. The post-test was given right after the treatment task and the delayed post-test was given two weeks after the treatment task.

All of the tests had oral and written components. The oral sections were used to assess the participants' knowledge of producing the past tense in communicative interactions.

The oral sections for all participants included both past tense and relative clauses questions but no additional fillers since each pair engaged in a task related to only one linguistic target. Participants who completed the tasks for past tense acted as the controls for relative clauses, and vice versa. For each test, the participants were asked to produce ten sentences. Table 5.4 illustrates the description of oral test.

Table 5.4. Oral Tests in Experiment 2

Linguistic targets	Description
Past tense	Learners were given a series of questions about their personal life (e.g., some events of their school lives in their countries), their mentor's life (e.g., some events of their mentor's lives in their countries), and someone's life with picture prompts. They were asked to answer in response to questions.

5.2.3 Analysis of Oral Test: Past Tense

5.2.3.1 Transcription

The data from the participants who participated in the tests was fully transcribed by a native speaker of English and the researcher. All transcriptions were reviewed by the researcher. Any unintelligible parts of the transcriptions were excluded from coding and analysis.

5.2.3.2   Coding: Past Tense

The oral tests were coded in the similar way as in the Diagnostic Test using common error types. A past tense sentence was coded in terms of targetlike and non-targetlike usage. When the past tense sentence was coded as non-targetlike usage, the past tense sentences were classified by error types. Unlike the Diagnostic Test, new categories (e.g., incorrect marking, repeat, replacement, skipped answer, and unrelated answer) were found in Experiment 2. Incorrect marking was coded when the sentence marked past tense in some way but was not grammatical. For example, sentences such as 'I was graduate' or 'she was go to school in 1995' were coded as incorrect marking since they marked past tense in some way but lead to a ungrammatical sentence. The reason that the new categories such as 'repeat', 'skipped answer', and 'unrelated answer' were found came from the modification of the testing

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procedure; the learners were asked to answer each question, and thus they needed to attend to the questions carefully. Some of the learners sometimes did not understand a question and asked for the question to be repeated. For the answers from repeated question, they were coded as 'repeat' when the learners correctly answered the question. That is, when they listened to the question again and the learners produced a target sentence, it was considered as 'repeat'. A non-targetlike answer with repetition of the question was simply considered as incorrect. 'Replacement' was coded when some change was involved in answering questions (e.g., he doesn't, didn't write any book). 'Skipped answer' was coded when learners did not answer the question or wanted to move to the next question. 'Unrelated answer' refers to a response that was not related to the question. For example, the answer 'I ate pizza' to the question 'what did you buy at the store?' was coded as unrelated answer. The nine types of past tense errors found in Experiment 2 are shown in Table 5.5.

Table 5.5. Past Tense: Error Types in Oral Tests

ERROR TYPE	DESCRIPTION	EXAMPLE	Scoring
T1	regular marking on irregular verb	comed	0.5 point
T2	double marking	camed	
T3	marking errors on Aux and verb	did not came, does not came	
T4	incorrect marking	I was graduate	
T5	repeat		
T6	replacement	drive, drove	
T7	the use of a verb's simple form	work	1 point
T8	skip		
T9	unrelated answer	I ate pizza (Question: what did you buy?)	

5.2.3.3 Scoring: Past Tense

The scoring of the oral test followed the same criteria as Experiment 1, using the same error patterns found in Experiment 1. The oral test was scored in terms of error rate. Zero points were given for targetlike construction. Either a half point or one point was given for non-targetlike form. A half point was given for the error types that were considered as partially correct in some respect. For example, T1 'a regular marking on irregular verb', T2 'double marking', T3 'marking errors on Aux and verb', T4 'incorrect marking', and T5 'repeat' and T6 'replacement' was awarded a half point. Since the purpose of the oral test was to see the learners' productive skills in response to the questions, the felicity of an answer was considered to be important. Considering that all interaction runs smoothly when it is mutually understood by the participants and needs negotiation when not understood, the felicity of answer was considered as an essential element of interaction. From this respect, T5 'repeat' was considered as partially grammatical as long as the learners answered accurately and felicitously as an answer for question. However, T7 'the use of a verb's simple form' and 'T8 'skip' was scored as one point. Also, T9 'unrelated answer', even though a sentence produced was grammatical, was scored as one point due to infelicity as an answer.

5.2.3.4 Interrater Reliability

Interrater reliability was evaluated for the past tense. In order to measure the accuracy in rating between the two raters, the 25% of the oral test transcription was coded by the researcher and a trained rater. Krippendorff's alpha was employed and the inter-rater reliability was 0.97 for coding of error types and scoring of past tense.

5.2.4 Results of Oral Tests

Between-group and Within-Group Analysis of Past Tense in Two Tests

This section compares the results of the pre-test and post-test on past tense. The two participants who earned less than 20% of errors were excluded from the analysis due to a

possible ceiling effect[14]. A total of 680 sentences on the pre-test and post-test were analyzed.

Descriptive statistics of mean error rate are presented in Table 5.6.

Table 5.6. Past Tense: Mean Error Rate between Pre-test and Post-test

	Pre-test		Post-test	
	Mean	S.D	Mean	S.D
IG group	0.57	0.19	0.42	0.26
DM group	0.55	0.23	0.66	0.20
Control group	0.64	0.22	0.50	0.27

The control group[15] did not engage in the task targeting past tense, the IG (one-way information gap task) group engaged in the task targeting past tense with a one-way information gap task and the DM (decision-making task) group engaged in the task targeting past tense with a decision-making task. The error rates of the IG and control groups decreased on the post-test but the error rate of the DM group slightly increased on the post-test. The mean error rates of past tense in three groups are presented in Figure 5.22.
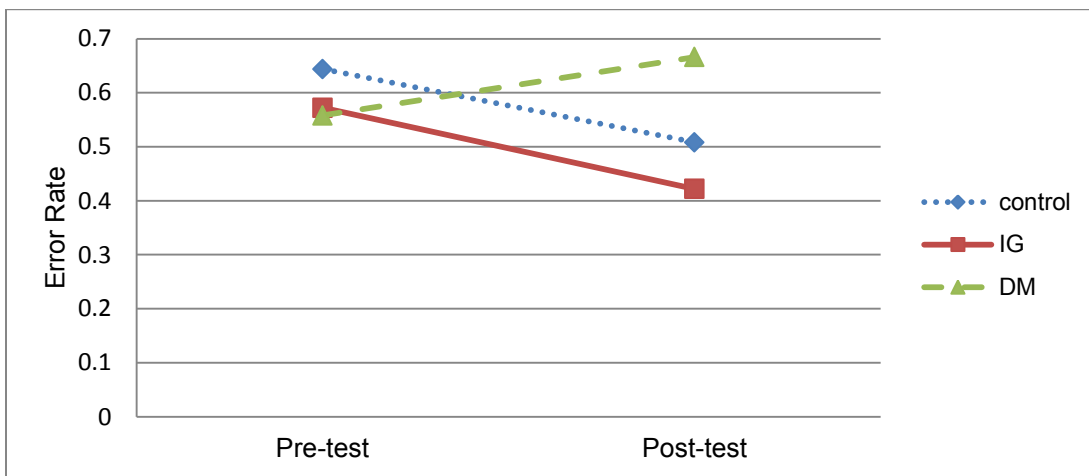
(Note: IG: one-way information gap task, DM: decision-making task)

Figure 5.2. Pre-test/Post-test of Past Tense in Oral Test

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[14] The reason for excluding participants with less than twenty percent of error rate, rather than thirty percent of error rate, was to obtain a sufficient number of participants (see Jeon (2004)).

[15] The control group refers to a group that did not involve the task targeting the past tense. The participants in the control group performed an activity targeting the relative clauses.

As Figure 5.2 shows, the error rate of the control group and the IG group dropped on the post-test, whereas the error rate of the DM group increased across the two tests, from 55.8% on the pre-test to 66.6% on the post-test. The error rate of the pre-test was almost the same for all three groups (64.4% in control group, 57.2% in IG group gap, and 55.8% in DM group)[16]. The error rate in the IG group dropped slightly from 57.2% to 42.2% on the post-test, and the error rate in the control group also dropped from 64.4% to 50.8% on the post-test. In contrast, the error rate in the DM group increased in two tests, by 55.8% on the pre-test, and by 66.6% on the post-test. The scores of 680 sentences obtained from pre- and post-tests were submitted to two- way ANOVA. The results of the pre-test and post-test are given in Table 5.7. The factor 'time' refers to the results of pre-test and post-test.

Table 5.7. Summary of Past Tense: Pre-test and Post-test in Oral Test

Factor	Type	df	Sum of Squares	Mean Square	F	p
Group	Between groups	2	0.127	0.063	0.758	.476
Time	Within groups	1	0.160	0.160	5.076	.031*
Group * Time	Interaction	2	0.154	0.077	2.447	.103

(Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1)

As Table 5.7 shows, the result showed a significant main effect of time. A two-way ANOVA with groups (the control group, the IG group, the DM group) and time (pre-test, post-test) as the independent variables and error rate as the dependent variable showed significant effect of time, $F(1,31)=5.07$, $p<.05$, indicating that error rate in the groups, particularly in the IG and the control groups, became progressively lower during the experiment.

Planned comparisons were also conducted in each group. Specifically, an ANOVA test was conducted to compare the mean error rate between the pre-test and the post-test. Some significant differences between the two tests were found in three groups. In the IG group, there was a significant difference found between the pre-test and post-test, $F(1,10)=5.5$, $p<.05$. In

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[16] There was no significant difference on the pre-test in three groups ($p=.58$).

the DM group, no significance was found between the pre-test and post-test, F (1, 5)= .91, p=.38. In the control group, a difference between the two tests closely approached significance, F (1,16)=4.45, p=.05. These results indicate that the task influences learning of past tense morphology and a decision-making task may not be as beneficial as a one-way information gap task.

Between-group and Within-Group Analysis of Past Tense in Three Tests

As in the oral test, this section shows the results of the delayed post-test in addition to the pre-test, and post-test. The participants who earned less than 20% of errors and who did not participate in the delayed post-test were excluded from the analysis[17]. Thus, a total of 930 sentences were analyzed. Descriptive statistics of mean error rate on the pre-test, post-test, and delayed post-test are presented in Table 5.8.

Table 5.8. Past Tense: Mean Error Rate in Three Tests

	Pre-test		Post-test		Delayed Post-test	
	Mean	S.D	Mean	S.D	Mean	S.D
IG group	0.60	0.26	0.44	0.18	0.52	0.27
DM group	0.56	0.26	0.72	0.18	0.42	0.23
Control group	0.63	0.22	0.50	0.28	0.57	0.30

Table 5.8 shows that the learners in the control and IG group had similar error rates on the pre-test and post-test. The error rate in the control group dropped from 63% in the pre-test and 50% in the post-test but increased again to 57% in the delayed post-test. The error rate in the IG group dropped over the tests, from 60% to 44 % in the post-test and 52% in the delayed post-test. However, the learners in the DM group showed an opposite pattern. The learners in the DM group had a high error rate on the post-test but low error rate on the delayed post-test. The error rate in the DM group changed from 56% in the pre-test, 72% in the post-test, and 42% in the delayed post-test. The mean error rates of past tense in three groups are shown in Figure 5.3.

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[17] As a result, a total of five participants were excluded (two from the control group, two from the IG group, one from the DM group) in comparison with the pre-test, the post-test, and the delayed post-test.
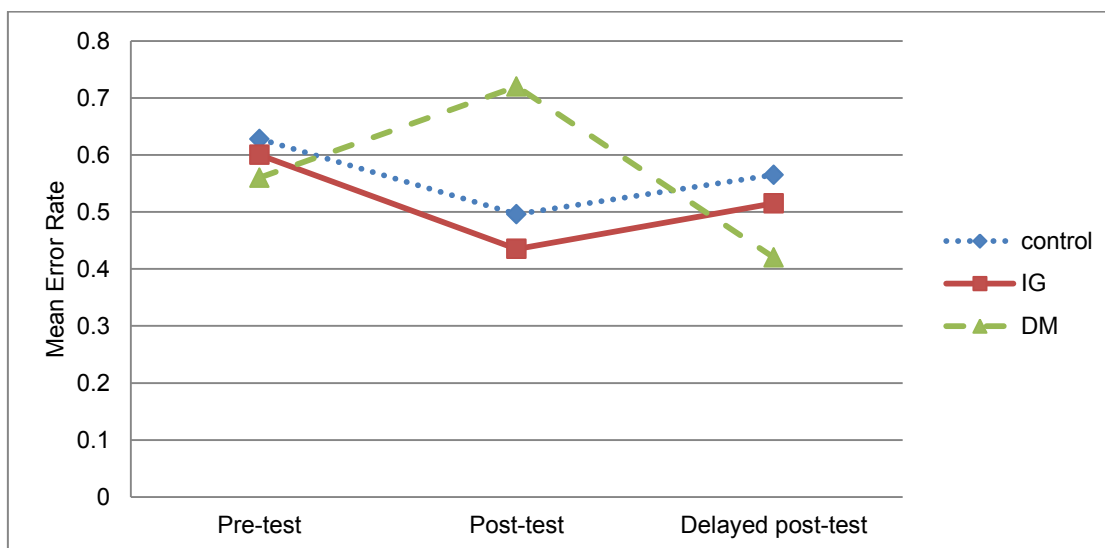
Figure 5.3. Pre-test/Post-test/DPT of Past Tense in Oral Test

In order to measure whether the participants developed their morphological knowledge of past tense in the pre-test, post-test, and delayed post-tests, a mixed design two-way ANOVA was conducted. The results of the pre-test, post-test, and delayed post-test for subject analysis are given in Table 5.9.

Table 5.9. Past Tense: Summary of Pre-test/Post-test/DPT in Oral Test

Factor	Type	df	Sum of Squares	Mean Square	F	*p*
Group	Between groups	2	0.046	0.023	0.173	.841
Time	Within groups	2	0.035	0.018	2.789	.086·
Group * Time	Interaction	4	0.334	0.083	2.584	.046*

(Signif. codes: '**' 0.01 '*' 0.05 '·' 0.1)

As Table 5.9 shows, the result showed no main effect of group. However, significance almost reached effect of time, $F_{(2, 56)}=2.55$, $p=.08$. The marginal effect of time indicates that the error rate became progressively lower during the experiment over time. Also, there was significant interaction effect between group and time found, $F_{(4, 56)}=2.58$, $p<.05$, indicating that some groups of learners learned past tense effectively over time. In order to see the effect in each group, ANOVA tests were conducted to compare the mean error rates between two tests; (1)

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pre-test and post-test, (2) pre-test and delayed post-test, and (3) post-test and delayed post-test were compared in each group. In the IG group, there was a difference between the pre-test and post-test, $F_{(1,9)}= 5.76$, $p<.05$, but no difference between the pre-test and delayed post-test, $F_{(1,9)}=1.38$, $p=.26$, and no difference between the post-test and delayed post-test, $F_{(1,9)}=1.14$, $p=.31$. In the DM group, there was a difference between the post-test and delayed post-test, $F_{(1,4)}=18$, $p<.05$, but no difference between the pre-test and delayed post-test, $F_{(1,4)}=4.04$, $p=.11$, and no difference between pre-test and post-test $F_{(1,4)}=1.66$, $p=.26$. Third, in the control group, no significance was found between tests. The mean error rates in terms of task type are presented in Figure 5.4.
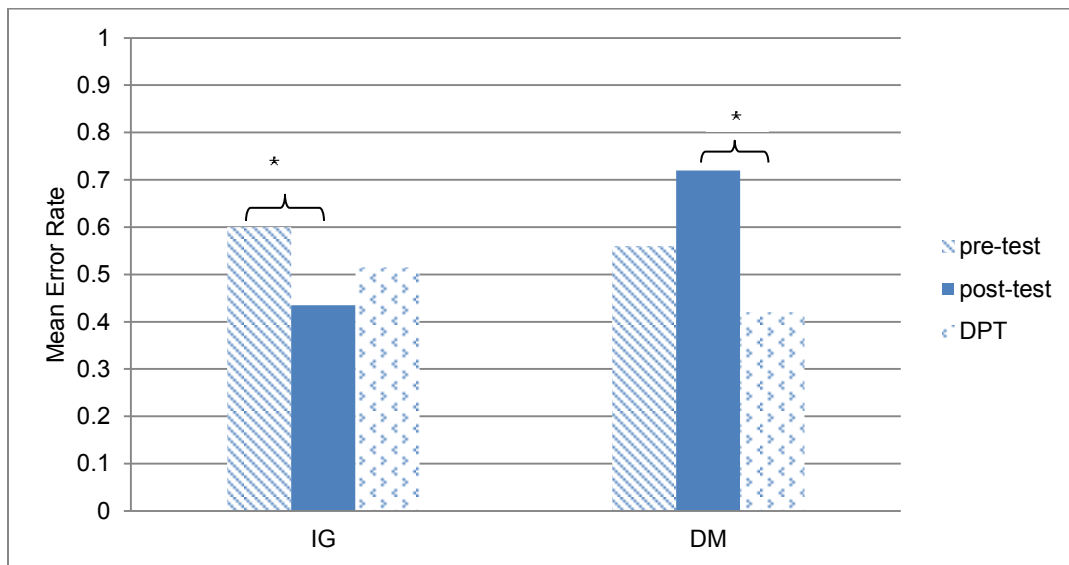
Figure 5.4. Error Rates in terms of Task Type

As Figure 5.4 shows, the learners in the IG group and the DM group had different error rates on the post-test and delayed post-test. These results can be explained in relation to the types of task; as discussed in Chapter 3, the one-way information gap task involved other-initiated repair. Thus, when considering the repair types, the results indicate that the learners could recognize the error on the immediate post-test from the interlocutor's repair initiation. The interlocutor's repair initiation facilitates speakers to recognize their immediate errors and thus the effect was found on the post-test. However, the effect of other-initiation did not last long; the error rate

increased again on the delayed post-test. In contrast, the decision-making task involves less other initiated repair but more self-initiated repair. These results indicate that the learners did not recognize the errors on the immediate post-test, with a higher error rate on the post-test than the pre-test, but they could recognize the errors on the delayed post-test. The effect of the decision-making task was effective only when the speakers recognize their errors on their own. The higher error rate of the post- test can be interpreted in a way that speakers may have needed some time to reprocess their grammar on their own. Overall, the types of task contributed to reducing errors over time differently.

Error Analysis

Error analysis was conducted in order to see whether error types were changed over time and task types. The changes of error types suggest that the learners may have reprocessed their internal grammar after the treatment. Of the thirty-six intermediate level participants, as mentioned in section 4.3.2, the participants that earned less than 20% of errors were excluded from the analysis and the participants who did not participate in delayed post-test were excluded from the analysis. Thus, a total of four participants were excluded in this analysis. A total of 930 sentences were analyzed in Experiment 2. The results showed that there were a total of 549 errors made in past tense. 549 errors were analyzed in terms of the error types with frequency mentioned above. Table 5.10 presents the type of errors of past tense with frequency in three tests.

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Table 5.10. Past Tense: Error Types Exp. 2

ERROR TYPES	FREQUENCY	PERCENTAGE
T1: the use of a verb's simple form	410	74.7%
T2: regular marking on irregular verb	7	1.27%
T3: double marking	3	0.54%
T4: marking errors on auxiliary	14	2.55%
T5: incorrect marking	13	2.37%
T6: repeat	27	4.91%
T7: replacement	28	5.10%
T8: skip	42	7.65%
T9: unrelated answer	5	0.91%
TOTAL	549	100%

Table 5.10 illustrates what types of errors were common over time. The learners made each type of error but percentage of each error types was not identical. As Table 5.10 shows, the most common errors were in use of verb's simple form; the learners did not mark past tense and produced simple present tense. In addition, the second most common errors were in 'skip'. The error type 'skip' indicated that the learners did not understand and skipped the questions. The error type 'repeat' and 'replacement' occurred with a similar frequency. The error type 'repeat' suggests some possibilities of language development for the learners in some respects in that they did not produce the grammatical past tense the first time but were able to produce a grammatical sentence on the second attempt. Also, 'replacement' strategy made the learners pay attention to the forms of past tense while producing answers.

These error types were further analyzed in terms of test types and groups with percentage in order to see whether certain error types were reduced over times. For example, if the learners showed different error types over time, it is expected to indicate that the learners may reprocess their internal grammar about past tense even though they still make errors in producing past tense. Table 5.11 summarizes the percentage of error types over time.

Table 5.11. Past Tense: Percentage of Error Types in Three Tests

	Control Group			IG Group			DM Group		
	Pre-test	Post-test	Delayed post-test	Pre-test	Post-test	Delayed post-test	Pre-test	Post-test	Delayed post-test
No marking	81.3	77	73.1	68.8	75	76.3	51.6	78.3	78.2
Regular Marking	2.80	1.1	1.03	0	2.08	0	0	2.70	0
Double Marking	0	2.3	0	0	0	1.81	0	0	0
Marking errors on Aux	2.8	0	3.09	0	0	5.45	12.9	0	4.34
Incorrect Marking	1.86	5.7	4.12	0	0	1.81	0	0	4.34
Repeat	2.80	4.59	5.15	6.25	6.25	3.63	12.9	2.70	8.69
Replacement	4.67	3.44	4.12	6.25	10.4	5.45	6.45	0	4.34
Skip	3.73	3.44	8.24	15.7	6.25	5.45	16.1	16.2	0
Unrelated answer	0	2.29	1.03	3.1	0	0	0	0	0
Total frequency	107	87	97	64	48	55	31	37	23

As Table 5.11 illustrates, the total frequency of error types in the control group and in the IG group decreased in the post-test, but slightly increased in the delayed post-test. However, in the DM group, an opposite pattern held true; the total frequency of error types increased on the post-test but decreased on the delayed post-test. The most common error was 'no marking' in three groups and in three tests; 'double marking' and 'regular marking' were rare. First, Figure 5.5 presents the percentage of error in terms of error types in the IG group.
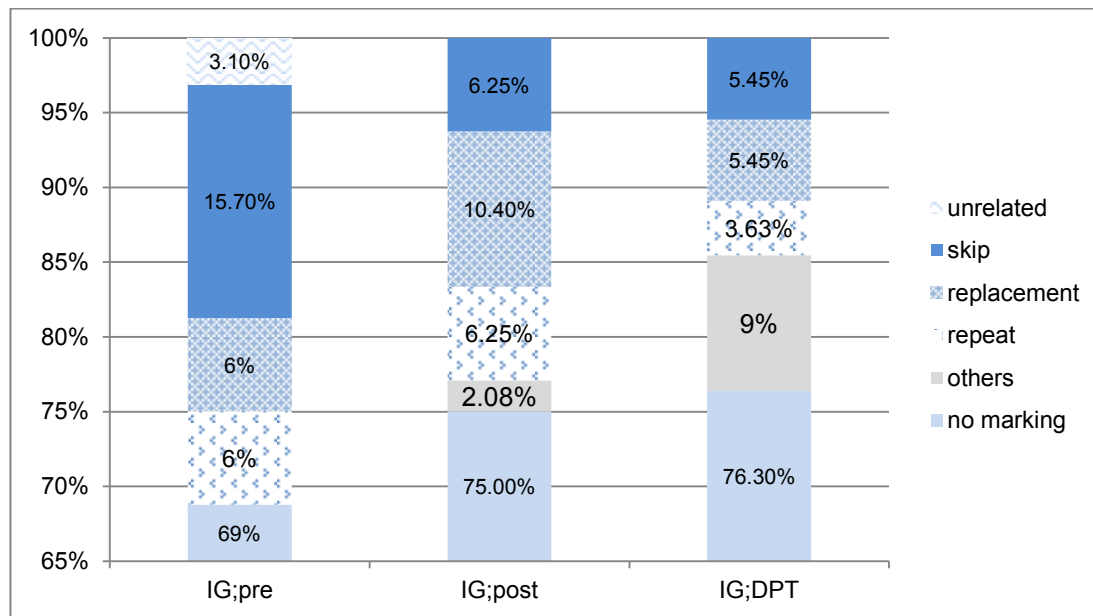
Figure 5.5. Percentage of Error Types of Past Tense in IG group

As Figure 5.5 illustrates, the error type 'no marking' was the most common error in the three tests. The percentage of 'skip' was the second most common on the pre-test but it was decreased over time. With the decrease of 'skip' over time, the use of other strategies increased; the learners often used 'replacement' and 'others' on the post-test. The use of 'others' did not occur on the pre-test at all but started to occur on the post-test and delayed post-test. The error type 'others' included the use of double marking, regular marking, incorrect marking, and marking errors on auxiliary verb. This may indicate that the learners attempted to mark past tense in some way on the post-test and delayed post-test rather than skipping their answers. That is, use of 'replacement' and 'others' draws attention to the form of past tense. Second,

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Figure 5.6 illustrates the percentage of error in terms of error types in the DM group.
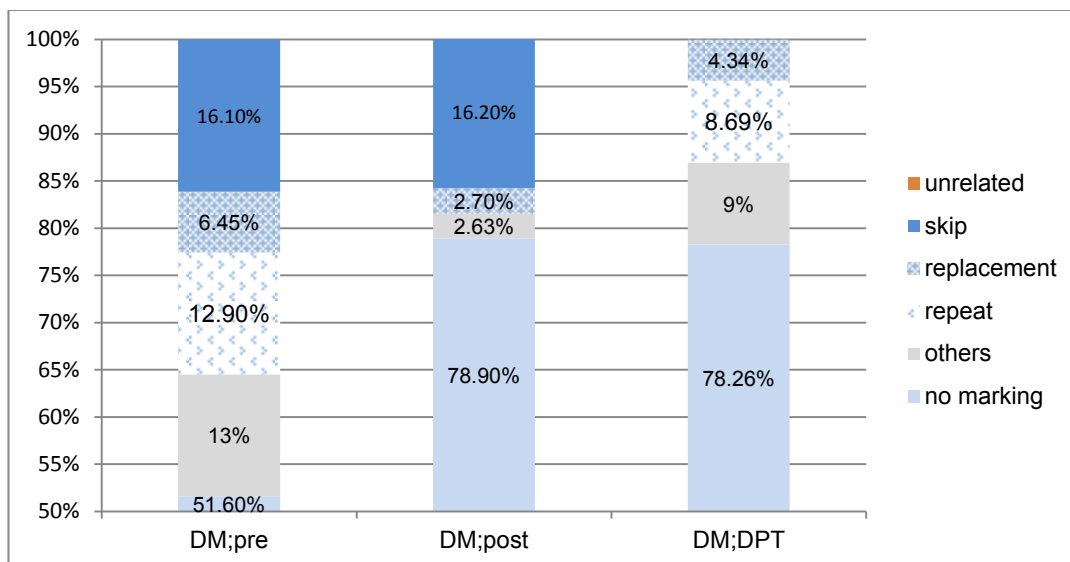
Figure 5.6.Percentage of Error Types of Past Tense in DM group

As Figure 5.6 illustrates, 'no marking' was the most common error in the three tests. The error type 'skip' was the second most common on the pre-test and post-test. Unlike the IG group, the percentage of 'repeat' and 'others' decreased on the post-test but increased on the delayed post-test. The results of pre-test and delayed post-test showed somewhat similar patterns in that the percentage of 'repeat' and 'others' occupied small percentage on the post-test but the percentage of those error types increased on the delayed post-test. The participants in the DM group were more likely to answer on the first try but their responses were not correct on the post-test, showing increase of no marking error. This result indicates that the use of 'repeat' and 'others' provides an opportunity to understand questions better and pay attention to production on the forms in past tense.

In this experiment, no Chi-Squared tests were used since this oral test data does not show the independence of observation. That is, each observation does not fall in only once cell since the learner could produce other types of errors in the tests. Thus, the results show some tentative patterns. Instead of using Chi-Square tests, the Intraclass Correlation Coefficient

(ICC)[18] was used to see whether the learners made same types of error over time. The ICC is interpreted as follows: the higher the coefficient figures are, the more consistency or correlation ensures. In other words, a high correlation shows that results are similar over time. A significant correlation shows how much we can trust those results, or how much we can generalize those results. In general, 0.3-0.4 shows fair agreement, 0.5-0.6 moderate agreement, and 0.7-0.8 strong agreement, and more than 0.8 almost perfect agreements[19]. In order to see the effect of 'replacement' and 'others' by each participant over time, the ICC of error categories 'skip', 'replacement', and 'others' was calculated. Figure 5.7 shows the effect of the error types by the participants over time.
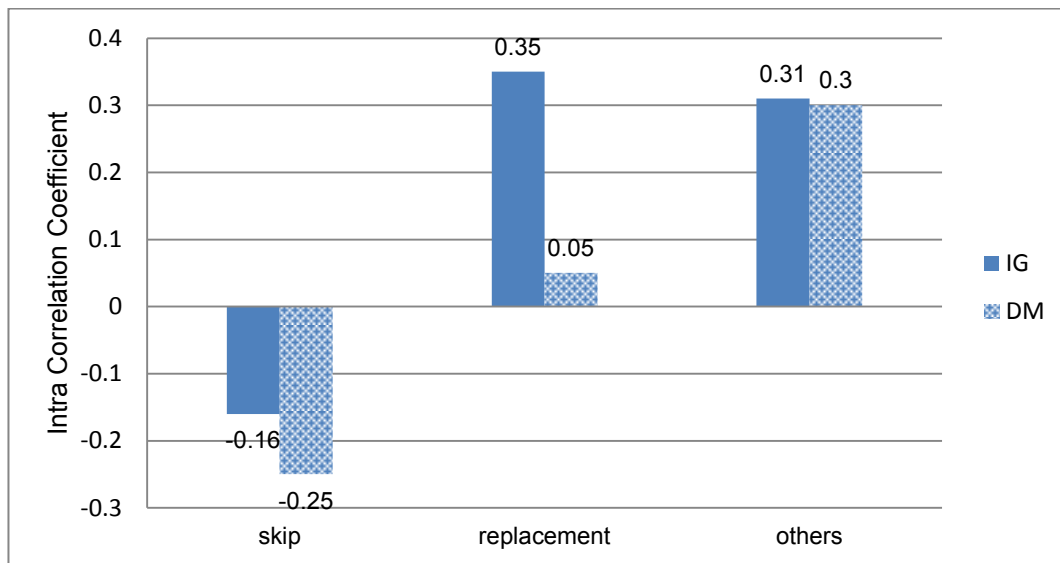
Figure 5.7. Effect of Error Types of Past Tense over Time

As Figure 5.7 shows, the effect of 'skip' was minimal and it indicates that the learners did not use 'skip' consistently over time. The learners only used 'skip' in a certain time period, particularly in the pre-test in the IG group even though it did not approach significance (p=.32) due to the small number of the participants. Thus, this result could be interpreted that the

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[18] Intraclass Correlation Coefficient (ICC) generally measures the extent of agreement or consensus between raters on the same set of participants. It is also used to measure correlation within a class.
[19] http://www.stattools.net/ICC_Exp.php

learners were more likely to attempt an answer over time. As the previously shown in Figure 5.5 and Figure 5.6, it was true that the error type 'skip' was dropped over time, showing negative figures. The effects of 'replacement' in the IG group and 'others' in the IG ($p<.01$) and DM groups were fairly consistent. They indicate that the learners attempted to mark the past tense in some way over time even though they are not grammatically perfect. In summary, this figure suggests that the learners stopped using the 'skip' strategy and tried to employ 'replacement' and 'others' over time.

Summary of Oral Test: Past Tense

So far, the results of past tense development on the oral test have been illustrated to answer Research Questions 2 and 3. Research Question 2 asked whether repair negotiation between L2 learners leads to development of linguistic targets. The results of the oral test showed that repair negotiation improved the past tense learning. However, the effects of the groups were not the same; the past tense knowledge was improved after treatment in the IG group but it was improved over time in the DM group. In addition, Research Question 3 asked whether type of task affects development of morpho-syntactic features. The oral test showed that the information gap task was effective on developing the knowledge of past tense on the post-test while the decision-making task was effective on the delayed post-test. As mentioned earlier, these two types of task holds a characteristic with regard to interactant relationship and thus the repair negotiation was influenced by the type of task. Recalling that the information gap task elicited a greater percentage of OIR than SIR and vice versa in the decision-making task, it can be said that OIR allowed the learners to focus on form immediately but the effect did not last long in the one-way information gap task. Also, SIR allowed the learners to focus on form but not immediately but rather as a long term effect, showing the effect on the delayed post-test in the decision-making task.

5.2.5 Written Tests: Past Tense

5.2.5.1 Materials

In addition to the oral test, in order to investigate the learners' receptive knowledge of the two linguistic targets, the written tests included not only the linguistic target, past tense, relative clauses, but also fillers. Each test included 108 questions, which were composed of thirty-six questions for past tense, thirty-six questions for relative clauses, and thirty-six questions for fillers. Each test included the same number of correct and incorrect sentences. The incorrect sentences of each target were created with a basis of common error types found among L2 learners. Specifically, incorrect sentences for past tense included six common error types such as eight questions for no marking on regular verb, two questions for double marking, two questions for no marking, two questions for the regular marking on irregular verb, two questions for double marking on auxiliary and two questions for no marking on auxiliary, and two questions for mismarking on auxiliary. Table 5.12 summarizes the ungrammatical test material in written test.

Table 5.12. Past Tense: Summary of Ungrammatical Items

Test Version	Verb Type	Error Type (# of questions)	Example
A, B, C	Regular/ Irregular	No marking (8)	Play; write
		Double marking (2)	wroted
		Regular marking (2)	writed
	Aux	Double marking on Aux (2)	did not received
		Mismarking on Aux (2)	does not received
		No marking on Aux (2)	does not receive

5.2.5.2 Procedures

A written test was created to be administered using the DMDX software. The questions for each version of the written test were automatically randomized. The participants were asked to hit a button indicating whether the sentences given sounded good or bad. Each question

allowed ten seconds as a maximal response time. No correction was provided during the test sessions.

5.2.5.3 Scoring

The written test was analyzed in terms of error rate. Incorrect sentences were awarded one point and correct sentence was awarded zero points.

5.2.6 Result of Written Tests

Between-group and Within-Group Analysis of Past Tense in Two Tests

This section compares the results of the pre-test and post-test from the thirty-six learners. As with the oral test, the participants who earned less than 20% of errors were excluded from the analysis. Scores for a total of 1,872 sentences on the pre-test and post-test were analyzed. Descriptive statistics of mean error rate are given below in Table 5.13.

Table 5.13. Past Tense: Mean Error Rate between Pre-test and Post-test

	Pre-test		Post-test	
	Mean	S.D	Mean	S.D
IG group	0.34	0.11	0.26	0.11
DM group	0.39	0.13	0.32	0.18
Control group	0.36	0.09	0.35	0.12

Table 5.13 shows that the learners in the IG and DM groups made fewer errors on the post-test than the pre-test. However, the error rate of the control group stayed more constant than the treatment group; the error rate of the IG group and DM group decreased on the post-test. The error rate of the pre-test was almost the same (36% in control group, 34.0% in one-way information gap, and 39% in decision-making) in three groups[20]. The error rate in the IG group dropped slightly from 34% to 26% on the post-test, and the error rate in the DM group also dropped from 39.8% to 32% on the post-test. In contrast, the error rate in the control group remained relatively steady in two tests, 36% on the pre-test, 35.1% on the post-test.

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[20] The three groups did not show a significant difference on the pre-test (*p*=.62).
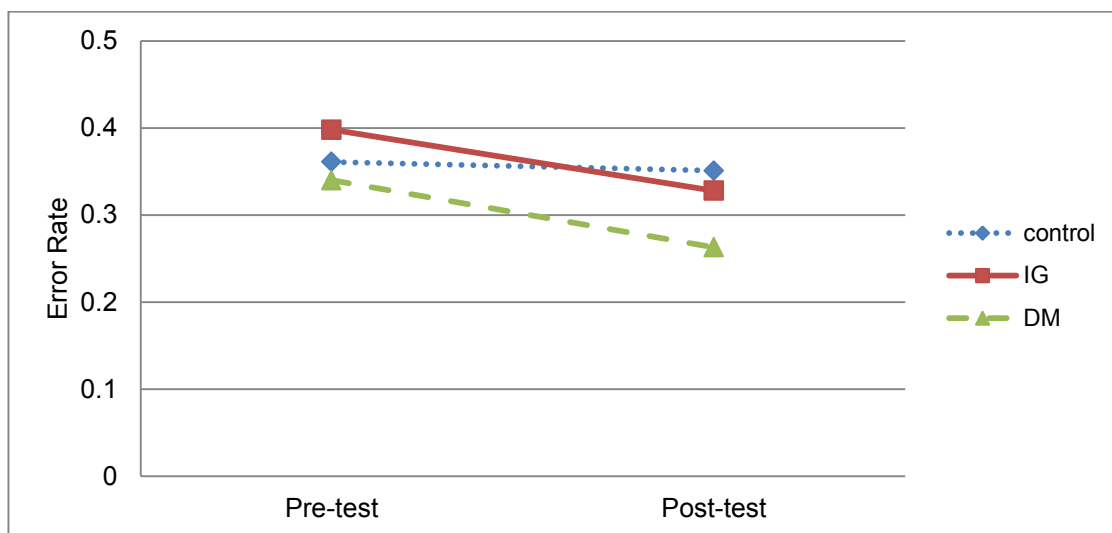
Figure 5.8. Pre-test/Post-test of Past Tense in Written Test

Scores for a total of 1,872 sentences on the pre-test and post-test were further submitted to a two- way ANOVA with groups (the control, the IG group, the DM group) and time (pre-test, post-test) as the independent variables, and error rate as the dependent variable. The results of the pre-test and post-test are given in Table 5.14.

Table 5.14. Summary of Past Tense: Pre-test and Post-test in Written Test

Factor	Type	df	Sum of Squares	Mean Square	F	p
Group	Between groups	2	0.036	0.018	0.723	.495
Time	Within groups	1	0.024	0.024	4.066	.055.
Group * Time	Interaction	2	0.013	0.006	1.090	.352

(Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1)

As Table 5.14 shows, the result showed no significant main effect of group, and an effect of time closely reached significance, $F_{(1,23)}=4.06$, $p=.05$, indicating that error rate in three groups got progressively lower during the experiment. In addition, planned comparisons were conducted in each group. No significant differences between tests were found in three groups. In the IG

group, there was no significant difference found between the pre-test and post-test, F (1,11)= 3.60, p=.09. In the DM group, nor significance was found between the pre-test and post-test, F (1,5)= 1.17, p=.32. In the control group, no significance was found in error rates between the two tests, F(1,11)=0.16, p=.62.

Moreover, error rate of past tense was analyzed in terms of grammaticality in three groups. Table 5.15 shows the error rates of grammatical and ungrammatical items on the pre-test and post-test.

Table 5.15. Past Tense: Error Rates of Grammaticality between Pre-test and Post-test in Written Test

	Control		IG		DM	
	Gram. items	Ungram. items	Gram. items	Ungram. items	Gram. items	Ungram. item
Pre-test	0.226	0.495	0.145	0.534	0.240	0.555
Post-test	0.203	0.500	0.180	0.347	0.185	0.472

As Table 5.15 shows, the error rates of grammatical items remained stable over the two tests. In contrast, the error rates of ungrammatical items were reduced over the two tests in the treatment groups (the IG group and the DM group). A two-way ANOVA for ungrammatical items revealed that the effect of time reached significance, F (1,23)=6.51, p<.01, and also an interaction effect of time and group, F (2,23)=3.98, p<.05. Planned comparisons were conducted in each group for ungrammatical items. In the IG group, there was a difference between the pre-test and post-test, F(1,7)= 11.02, p<.05. In the DM group, no difference between the pre-test and post-test was found, F(1,5)=1.03, p=.35. In the control group, no significance was found in error rates between the pre-test and post-test, F(1,11)=0.02, p=.88. In sum, the one-way information gap task allowed the learners to notice the ungrammatical items. Figure 5.9 presents the results of ungrammatical items in three groups.
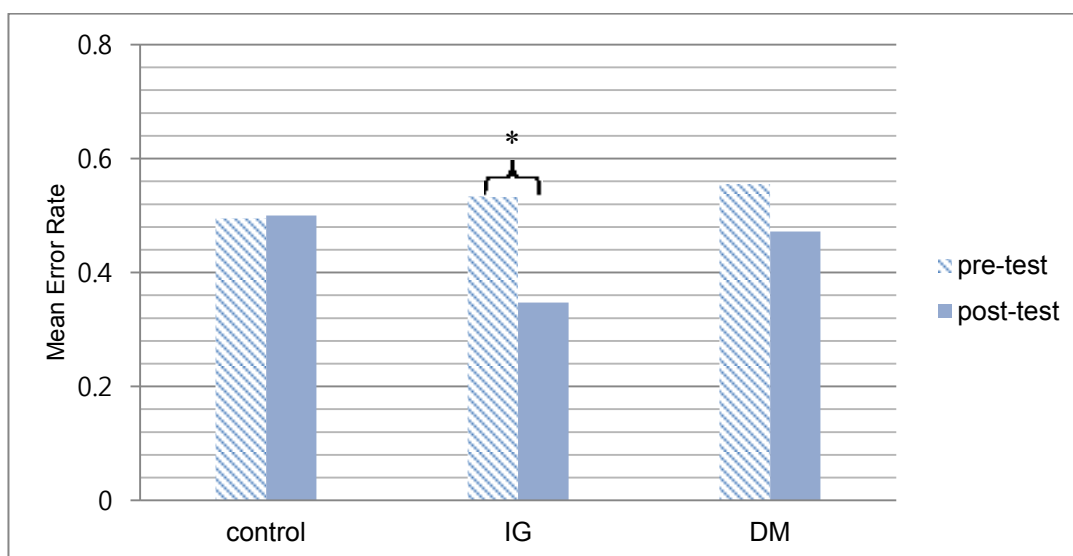
Figure 5.9. Error Rates of Ungrammatical Items in Oral Pre-test/Post-test

As Figure 5.9 presents, the error rate of ungrammatical items stayed steady between the pre-test and post-test in the control group. The error rate of ungrammatical items was reduced in the IG group and DM group, but the difference was only found in the one-way information gap task. The one-way information gap task facilitated the learners to differentiate the ungrammatical items more correctly than the decision-making task.

Between-group and Within-Group Analysis of Past Tense in Three Tests

As in the oral test, this section shows the results of the delayed post-test in addition to the pre-test, and post-test of past tense. Again, the participants that earned less than 20% of errors were excluded from the analysis, and those that did not participate in the delayed post-test were also excluded from the analysis[21]. A total of 2,483 sentences were analyzed. Descriptive statistics of mean error rate from 2,483 sentences on the pre-test, post-test, and delayed post-test are given below in Table 5.16.

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[21] As a result, a total of thirteen participants were excluded (seven from the control, five from the IG group, one from the DM group).

Table 5.16. Past Tense: Mean Error Rate in Three Tests

	Pre-test		Post-test		Delayed Post-test	
	Mean	S.D	Mean	S.D	Mean	S.D
IG group	0.35	0.12	0.27	0.12	0.25	0.13
DM group	0.35	0.06	0.29	0.17	0.26	0.10
Control group	0.35	0.09	0.33	0.12	0.34	0.09

As seen above, the error rate of the pre-test was almost the same (35% in the control group, 34.5% in the IG group, and 35% in the DM group) in three groups[22]. The error rate in the IG group dropped slightly from 34.5% to 27% in the post-test and 25% in the delayed post-test, and the error rate in the DM group also dropped from 35% to 29% in the post-test, and 26% in the delayed post-test. In contrast, the error rate in the control group remained relatively steady across three tests, 35% in the pre-test, 33% in the post-test, and post-test to 34% in the delayed post-test. The mean error rates of past tense in three groups are presented in Figure 5.10.
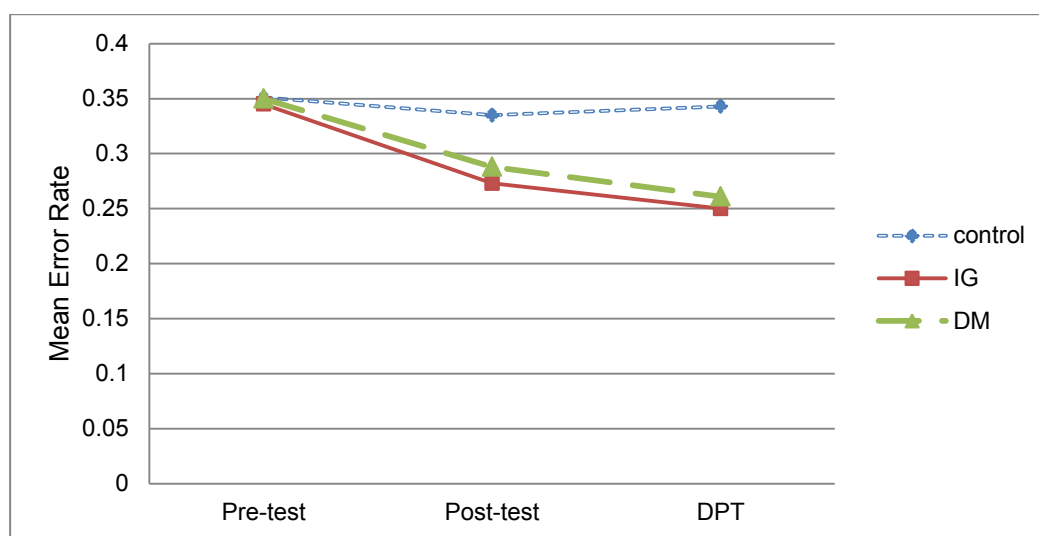
Figure 5.10. Pre-test/Post-test/DPT of Past Tense in Oral Test

In order to measure whether the participants developed their morphological knowledge of past tense in the pre-test, post-test, and delayed post-test, a mixed design two-way ANOVA was

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[22] There was no significant difference on the pre-test in three groups (p=.99).

conducted. The results of the pre-test, post-test, delayed post-test are given in Table 5.17.

Table 5.17. Summary of Past Tense: Pre-test, Post-test, and DPT

Factor	Type	df	Sum of Squares	Mean Square	F	p
Group	Between groups	2	0.042	0.021	0.818	.455
Time	Within groups	2	0.035	0.018	2.789	.073
Group* Time	Interaction	4	0.021	0.005	0.839	.508

(Signif. codes: '**' 0.01 '*' 0.05 '·' 0.1)

As Table 5.17 shows, the result showed no significant main effect of group, even though the error rate of the IG group and DM group was lower over time. However, an effect of time almost reached significance, $F(2,40)=2.78$, $p=.07$. The slight effect of time indicates that error rate got progressively lower during the experiment. Also, no significant interaction effect was found, $F(4, 40)=0.83$, $p=.50$. Planned comparisons were conducted for each group. Results showed that no significance was found between the tests in three groups. In the IG group, no significance was found between the pre-test and post-test, $F(1,6)=2.4$, $p=.17$, between pre-test and delayed posttest, $F(1,6)=1.83$, $p=.22$, and between post-test and delayed post-test, $F(1,6)=0.47$, $p=.51$. In the DM group, no significance was found between the pre-test and post-test, $F(1,4)=0.61$, $p=.47$, between pre-test and delayed post-test, $F(1,4)=4.03$, $p=.11$, and between the post-test and delayed post-test, $F(1,4)=0.58$, $p=.48$. No significance in the IG group and DM group may be from the small number of participants. In the control group, no significance was found in error rates between tests.

In addition, error rate of past tense was analyzed in terms of grammaticality in three groups. Table 5.18 shows the error rates of grammatical and ungrammatical items in three tests.

Table 5.18. Past Tense: Error Rates of Grammaticality in Three Tests

	Control Group		IG		DM	
	Gram. items	Ungram. items	Gram. items	Ungram. items	Gram. items	Ungram. item
Pre-test	0.212	0.489	0.158	0.531	0.188	0.511
Post-test	0.186	0.484	0.190	0.357	0.144	0.433
DPT	0.167	0.520	0.206	0.293	0.133	0.388

(Note: gram: grammatical, ungram: ungrammatical)

As Table 5.18 shows, the error rates of grammatical items were slightly reduced over three tests in the control group and DM group. However, the error rates of ungrammatical items were remarkably reduced over three tests in the treatment groups (the IG group and the DM group). A two-way ANOVA for ungrammatical items revealed that the effect of time barely reached significance, $F_{(2,40)}=3.18$, $p=.05$. Also, there was an interaction effect of time and group, $F_{(4,40)}=2.71$, $p<.05$, indicating that certain groups performed better over time. In order to see which groups benefitted over time, planned comparisons were conducted in each group for ungrammatical items. In the IG group, some difference was found between the pre-test and post-test, $F_{(1,6)}=7.65$, $p<.05$, between pre-test and delayed posttest, $F_{(1,6)}=7.31$, $p<.05$, but no difference between post-test and delayed post-test, $F_{(1,6)}=1.22$, $p=.31$. In the DM group, a difference was found only between the pre-test and delayed post-test, $F_{(1,4)}=11.00$, $p<.05$. In the control group, no significance was found in error rates between tests. In sum, treatment allowed the learners to notice the ungrammatical items over time.

Also, the d-prime (d'), which measures the distance between grammatical and ungrammatical items, was calculated in three groups. The d-prime on the pre-test, post-test, and delayed post-test was 0.83, 0.93, and 0.92 in the control group, 0.92, 1.24, and 1.37 in the IG group, and 0.86, 1.23, and 1.35 in the DM group. Since the d-prime in the treatment groups was higher than in the control group, it can be said that the learners in the IG and DM groups

had a higher sensitivity on the past tense and could judge whether a sentence was grammatical or ungrammatical more clearly than the learners in the control group.

Figure 5.11 presents the difference between ungrammatical items in three groups.
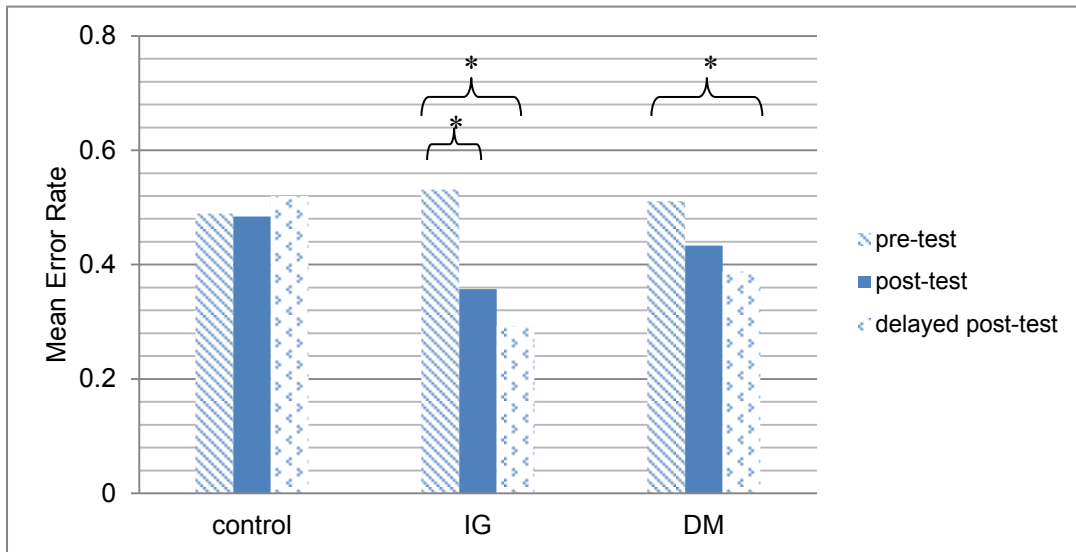
Figure 5.11. Error Rates of Ungrammatical Items in Three Tests

As Figure 5.11 presents, the error rate of ungrammatical items was not different in three tests in the control group, but the error rate of ungrammatical items reduced in the IG and the DM groups.

Error Analysis

Error types were analyzed in order to see whether certain error types were reduced over times. Due to the difficulty of including all six types of error in a table, the error rate of the first three error types above is first illustrated below. Table 5.19 summarizes the mean error rates of error types of past tense verb in three tests in both groups.

Table 5.19. Past Tense: Mean Error Rates on Verb in Three Tests

	Control Group			IG			DM		
	Pre-test	Post-test	DPT	Pre-test	Post-test	DPT	Pre-test	Post-test	DPT
dm	0.295	0.545	0.400	0.285	0.285	0.357	0.400	0.300	0.500
nm	0.295	0.267	0.256	0.285	0.133	0.169	0.312	0.200	0.150
rm on irreg. verb	0.409	0.363	0.450	0.428	0.464	0.214	0450	0.400	0.450

(dm: double marking, nm: no marking, rm: regular marking)

As Table 5.19 illustrates, the error rate of error types over three tests changed over time. The error rate of 'no marking' dropped over time and showed the effect of time, $F_{(2, 39)}= 3.74$, $p<.05$. This result indicates that the learners in the three groups were able to recognize that 'no marking' was not grammatical. Planned comparisons were conducted to see whether a certain type of error was significantly reduced over time in each group. In the IG group, the error rate of 'no marking' was significant difference between the pre-test and post-test, $F_{(1,6)}= 6.56$, $p<.05$, indicating that the error rate of 'no marking' decreased significantly from pre-test to post-test. In the DM group, no significance was found between the pre-test and post-test, $F_{(1,4)}= .94$, $p=.38$, between the pre-test and delayed post-test, $F_{(1,4)}=2.54$, $p=.18$, and between the post-test and delayed post-test, $F_{(1,4)}=.76$, $p=.43$. Also, in the control group, no significance was found between tests.

The error type 'regular marking on irregular verb' also showed a difference in the three groups. In the IG group, the error rate of 'regular marking' showed significant difference between post-test and delayed post-test, $F_{(1,6)}=7.0$, $p<.05$. However, in the DM group and control group, no significance was found between three tests. Thus, it can be said that repair negotiation facilitated in recognizing a specific error type, 'no marking' and 'regular marking on irregular verb' in the one-way information gap task.

The error rate of last three error types above is examined below. Table 5.20 summarizes the mean error rates of error types of past tense auxiliary verb (AUX) in three tests in three groups.

Table 5.20. Past Tense: Mean Error Rates on Auxiliary in Three Tests

| | Control Group | | | IG | | | DM | | |
	Pre-test	Post-test	DPT	Pre-test	Post-test	DPT	Pre-test	Post-test	DPT
dm on aux	0.522	0.522	0.400	0.464	0.500	0.357	0.600	0.400	0.500
mm on aux	0.386	0.204	0.322	0.321	0.392	0.285	0.200	0.350	0.150
nm on aux	0.363	0.318	0.400	0.464	0.285	0.285	0.250	0.350	0.150

(dm: double marking, nm: no marking, rm: regular marking)

As Table 5.20 shows, the error rates of some error types decreased over time. The error rate of 'double marking on auxiliary verb' decreased slightly in the DM group, but the error rates of double marking on auxiliary did not show a significant effect of test type, $F_{(2,8)}= 0.65$, p=.54 due to the small sample size. The error rate of 'double marking on auxiliary verb' remained the same in the control group or slightly increased in the IG group. No other significant differences of error types on auxiliary verb were found.

Summary of Written Test: Past Tense

This section summarizes the results of the written test on the past tense in relation to Research Question 2 and 3. Research Question 2 asked whether repair negotiation between L2 learners leads to development of linguistic targets. The results of the written tests showed that there was a treatment effect; however, the treatment effect was significantly different only for recognition of ungrammatical items in the IG and DM groups. In addition, Research Question 3 asked whether type of task affects development of morpho-syntactic features. The types of task influenced the development of past tense differently. In the IG group, the effect of

ungrammatical items was significant between the pre-test and post-test and the pre-test and delayed post-test. However, in the DM group, the effect was significant only between the pre-test and delayed post-test. In sum, the information gap task led to both short-term and long-term effect and the decision-making task led to long-term effect on identification of ungrammatical items.

5.2.7 Comparison of Oral and Written Tests for Past Tense

On the oral test, a total of 930 sentences elicited from the learners were analyzed. The mean error rate of past tense verbs approached 54.6%. No marking was the most common error in the three tests and skip was the second most common. The learners simply expressed the past event as present tense. However, the percentage of 'skip' decreased over time. In particular, the learners in the IG group tried to use other strategies including 'repeat' and 'replacement' rather than 'skip'. The written test showed a 31% mean error rate of past tense. The error type 'no marking' was quite common but the error rate of 'no marking' reduced over time in the written test. The effect of time almost reached significance but no interaction effect was found between group and time. However, the error rates of ungrammatical sentences significantly decreased over three tests in the IG and the DM groups, (p<.05).

Overall, the error rate of past tense on the oral test was higher than on the written test. The learners' productive knowledge about past tense was different from their receptive knowledge in that the learners had quite different error rates in the oral and written tests; the learners felt more difficulty in producing grammatical past tense. In oral and written tests, the learners made the quite common mistake of 'no marking'. However, the error rate of 'no marking' significantly decreased over the study, particularly in the IG group. That result indicates that the learners' morphological rules were not completely internalized but developed over time.

5.2.8 Discussion of Past Tense

The analysis of the oral and written tests did not clearly show the main effect of treatment over time. However, the results indicated that the learners started to recognize that they should mark past tense in some way even though they did not know what the accurate forms were. Considering the fact that the learners made common errors in using present tense in the context where past tense was needed, the decease of 'no marking' bears importance. The learners learned that 'no marking' of past tense would not work any longer and attempted to mark past tense over time. The error rates of 'no marking' were reduced from the pre-test to the post-test in the IG group by reaching significance level (p<.05) in the written test. In addition, the learners attempted to use double marking and regular marking rather than skipping answers and no marking over time. According to Ali Muftah and Eng (2011), 'no marking' does not directly indicate the morpho-syntactic deficiency on the target language but rather it is more likely to "show a difficulty in mapping and matching their (L2 learners) knowledge to L2 language-specific rules particularly those that govern affixal inflection. As a result, the L2 learners opt for default uninflected forms where inflected forms are required" (p. 93). In this study, the learners' various attempts over time reflect that the learners have past tense knowledge but they have a mapping problem between tense feature and its surface form[23].

One possible reason that a clear main effect of group did not appear may be from the duration of treatment. Since the duration of treatment was relatively short, when compared to previous studies (Adams 2004), it may not be sufficient for learners to reorganize the learners' interlanguage system of past tense completely during the treatment. Also, it can be explained in terms of the acquisition order of grammatical morpheme and perceptual saliency. Previous studies have presented that grammatical morphemes in English is acquired in a certain order (Dulay and Burt 1974; Larsen-Freeman 1975). For example, Dulay and Burt (1974) found the

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[23] Missing Surface Inflection Hypothesis (Prévost and White, 2000) and Lardiere (1998)'s "mapping" hypothesis hypothesize that even when the inflection is absent on the surface, the underlying representation of tense is still present.

acquisition order of English morphemes from the Spanish and Chinese children learning English. Their study showed that progressive form –ing and simple plural form –s is acquired before past tense. These results were also supported by Larsen-Freeman (1975)'s study that examined the acquisition order of English morpheme from adults learning English.

The acquisition order is closely related to perceptual saliency. Some studies have shown that grammatical morpheme with high perceptual saliency is acquired more easily and early than grammatical morpheme with low perceptual saliency (Collins et al., 2009; Goldschneider & DeKeyser, 2001). The fact that the past tense learning is acquired later than progressive and simple plural forms indicates that past tense holds low perceptual saliency. The reason that the past tense has low perceptual saliency when comparing to other morphemes may be from the variant forms of regular and irregular past tense. The irregular past tense comes from the learners' memory and the regular past tense comes from the computation of rules. Even within the regular past tense forms, there are three allomorphic variants [-id] as in 'wanted', [-d] as in 'studied', and [-t] as in 'worked' (Soto et al., 2003). According to Soto et al. (2003), even within the regular past tense forms, [-id] is acquired earlier than the other allomorphs. Thus, generally, it can be said that these various forms may make learners to have heavy processing load and thus acquired later than other regular forms.

Finally, semantic redundancy may play a role. Semantic redundancy means that a morphological ending of a form (e.g., -ed or –ing) is not semantically necessary since meaning of the form can be expressed by other means in the sentence. For example, a verb ending including past tense and present progressive is semantically redundant since the past tense can be expressed by other lexical items such as 'yesterday' or 'right now'. Thus, semantic redundancy makes the learner establish the link of form and meaning and is hard to acquire (DeKeyser 2005).

In summary, while the oral and written tests did not clearly show the main effect of treatment over time, the experiment on past tense contributes to understanding the difficulty of past tense learning in relation to perceptual saliency as well as allomorphs of the form.

5.3 Relative Clauses

5.3.1 Participants

The same thirty-six participants from the past tense experiment participated in this experiment. The eighteen participants who were in the control group for past tense work participated in the treatment group of relative clauses and the rest of the participants who were in the treatment group of past tense participated in the control group of relative clauses. The eighteen participants were divided into two groups; six dyads were assigned to the IG group and three dyads were assigned to the DM group.

5.3.2 Testing Materials

As in the materials of past tense, three versions of the tests were created with the same format and each version was randomly given as pre-test, post-test, and delayed post-test to the participants. Also, all of the tests had oral and written components. In oral test, nine sentences including three subject relative clauses, three object relative clauses, and three oblique relative clauses were elicited for relative clauses. Table 5.21 illustrates the description of oral test.

Table 5.21. RCs: Oral Tests in Experiment 2

Linguistic targets	Description
Relative Clauses	The relative clauses oral test asked the learners to listen to a description of two similar-looking pictures containing colored stars, and then to describe one of the pictures.

5.3.3 Interrater Reliability

In order to measure the accuracy in rating between the two raters, the 25% of the oral test transcription was coded by the researcher and a trained rater. Krippendorff's alpha was employed and the inter-rater reliability was 0.89 for coding of error types and scoring of relative clauses.

5.3.4 Analysis of Oral Test: Relative Clauses

5.3.4.1 Transcription

The data from the participants who participated in all three tests (pre-test, post-test, and delayed post-test) was transcribed by a native speaker of English and the researcher. All transcriptions were reviewed by the researcher. Any unintelligible parts of the transcriptions were excluded from coding and analysis.

5.3.4.2 Coding, Scoring, and Analysis

5.3.4.2.1 Coding, Scoring, and Analysis for Subject RC

As in the Diagnostic Test, the oral production of relative clauses was coded in terms of targetlike and non-targetlike usage. When the relative clauses were coded as non-targetlike usage, the sentences were classified by error types. Unlike the Diagnostic Test, new categories (e.g. misuse of antecedent, correct answer with repeated question, and double relative pronoun) were found in Experiment 2. 'Misuse of antecedent' was coded when the learners chose an incorrect antecedent for the answer. For example, a sentence such as 'the cap that the girl is wearing' was coded as misuse of antecedent since an intended sentence was 'the girl that is wearing a cap'. Double relative pronoun was coded when the unnecessary relative pronoun was produced. For example, a sentence such as 'the boy that who is reading a book' was coded as double relative pronoun for an intended sentence 'the boy that is reading a book' or ' the boy who is reading a book'. The reason that the new categories such as 'correct answer with repeated question' found came from the modification of the testing procedure; the learners were asked to answer each question, and thus they needed to attend to the questions carefully. Some of the learners sometimes did not understand a question and asked for the question to be repeated. For the answers from repeated question, they were coded as repeat when the learners correctly answered the question. That is, when they listened to the question again and the learners produced a target sentence, it was considered as 'correct answer with repeated question'. A non-targetlike answer with repetition of the question was simply considered as

incorrect. Incomplete form and unrelated answer was coded when learners gave up answering completely or a response was not related to the question. The error types found were separately analyzed in terms of the type of relative clauses (subject, object, and oblique RCs). The coding of the oral test in Experiment 2 was based on the coding used in Experiment 1. The type of errors with subject relative clauses found in Experiment 2 is given in Table 5.22.

Table 5.22. Subject RCs: Type of Error in Exp. 2
(adapted from Ellis 1994)

Error Type	Description	Example	Scoring
SUB1	no use of relative pronoun	The boy is reading a book	1 point
SUB2	use of ordinary pronoun	This is a boy he is reading a book'	
SUB3	incomplete form/ unrelated answers	The boy is….	
SUB4	misuse of antecedent	The book that the boy is reading	
SUB5	pronominal copy	The boy who he is reading a book	0.5 point
SUB6	correct answer with repeated question	The boy who is reading a book	
SUB7	double relative pronoun	The woman that who is reading a book	

The use of relative clauses was scored the same way as in Diagnostic Test in Chapter 4. A targetlike form was scored as zero points and non-targetlike form was scored as either a half point or zero points. The criteria that distinguished a half point from one point were the felicity as an answer and use of relative pronouns. If the sentence produced was infelicitous as an answer or did not include relative clauses in a context where relative clauses should be used, it was considered to be infelicitous. With this consideration, error type SUB1-SUB4 was awarded one point. For example, the sentence 'the boy is reading a book' does not include a relative pronoun at all and is also infelicitous as an answer to the question 'which boy has a red star?' even though the sentence is grammatical. In cases when the sentence produced was felicitous and included relative clauses, it was considered to be partially felicitous and grammatical. With this consideration, error type SUB5-SUB7 was awarded a half point. For example, the sentence 'the

boy who he is reading a book' is produced with a form of relative cause and felicitous as an answer even though the sentence is not completely grammatical.

In the analysis of subject RCs, there were a total of 103 errors made in the subject relative clauses with six categories: no use of relative pronoun, incomplete form, wrong antecedent, pronominal copy, correct answer with repeated question, and double relative pronoun. Table 5.23 shows the type of errors of subject relative clauses with examples.

Table 5.23. Subject RCs: Error Types in Exp. 2

ERROR TYPES	FREQUENCY	PERCENTAGE
SUB1: no use of relative pronoun	64	62.01%
SUB2: use of ordinary pronoun	0	0%
SUB3: incomplete form/unrelated answers	3	2.91%
SUB4: misuse of antecedent	18	17.47%
SUB5: pronominal copy	15	14.56%
SUB6: correct answer with repeated question	1	0.97%
SUB7: double relative pronoun	2	1.94%
TOTAL	103	100%

As Table 5.23 shows, the most common errors were in 'no use of relative pronoun'. This indicates that learners did not feel the need to use relative clauses at all and made only simple sentences. The second most common errors were in 'use of wrong antecedent'. Some learners did not pay attention to the questions and chose wrong antecedents. Fifteen sentences were produced with pronominal copy (e.g., the boy who he is reading). Less commonly, two sentences were produced with double relative pronoun (e.g., the runner that who use his shoes). Interestingly, no participants used just an ordinary pronoun.

5.3.4.2.2 Coding, Scoring, and Analysis of Object RC

Error types of object relative clauses were based on the error types found in the Diagnostic Test. Again, Unlike the Diagnostic Test, new categories (e.g. wrong antecedent, correct answer with

repeated question, and double relative pronoun) were found in Experiment 2. Table 5.24 depicts

the error types of object relative clauses from Experiment 2.

Table 5.24. Object RCs: Type of Error in Exp. 2

Error Type	Description	Example	Scoring
OBJ1	inversion of subject and verb	cheese that is eating the mouse	1 point
OBJ2	no use of relative pronoun	the woman is dancing with man	
OBJ3	misuse of antecedent	a rabbit that holding a carrot (targeted sentence: a carrot that a rabbit is holding)	
OBJ4	incomplete sentence	the ball that the girl uh ehh	
OBJ5	use of passive sentence	the carrot that is held by a rabbit'	0.5 point
OBJ6	pronominal copy	'the ball the woman is hitting it'	
OBJ7	correct answer with repeated question	'the ball the woman is hitting'	
OBJ8	double (or wrong) relative pronoun	'the ball that which the woman is hitting'	

As Table 5.24 shows, the coding of object relative clauses was coded in eight types of error.

Error type OBJ1 was coded when the participants did not use the appropriate sentence order.

Error type OBJ5 was coded when the participants produced a passive sentence even though

instruction and the questions were given to use active sentences. Some participants did not

employ the correct past participle form, but these were coded as the use of passive sentence as

long as the participants attempted to use the preposition *by* + subject to make the sentences

passive (e.g., the bag that is pulling by woman).

The error types of object relative clauses were scored in accordance with coding in

subject relative clauses. The same criteria that distinguish a half point from one point were used.

Targetlike form was scored as zero points. Non-targetlike form was scored as either a half point

or one point. One point was awarded when the learners did not recognize the need of relative

pronoun or when the sentence is infelicitous as an answer. A half point was awarded when the

learners recognized the need of relative pronoun or the sentence produced is partially felicitous

and grammatical, such as a correct answer from a repeated question. The scoring scheme for object relative clauses is presented in Figure 5.12.

```
                  ┌─────────────────┐
                  │    Object RC    │
                  └─────────────────┘
                    ↙           ↘
        ┌──────────────┐   ┌──────────────────┐
        │  Targetlike  │   │   Non-targetlike │
        └──────────────┘   └──────────────────┘
                              ↙           ↘
   Error Type           OBJ 1-4          OBJ 5-8

                          │                │
                       1 point         0.5 points
```
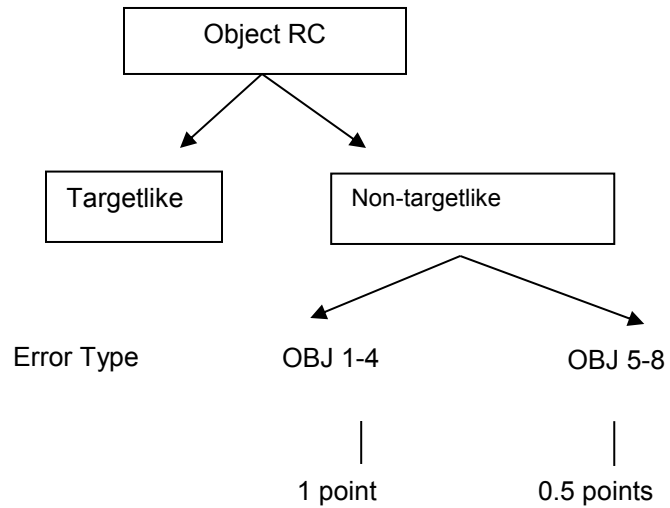
Figure 5.12. Scoring for Object RCs

Based on the coding and scoring of object RCs presented above, object RCs were analyzed. In the analysis of object RCs, 154 sentences with partially targetlike or non-targetlike forms were analyzed. Eight error types are presented in Table 5.25.

Table 5.25. Object RCs: Error Types in Exp. 2

ERROR TYPE	FREQUENCY	PERCENTAGE
OBJ1: inversion of subject and verb	4	2.54%
OBJ2: no use of relative pronoun	58	37.6%
OBJ3: misuse of antecedent	30	19.4%
OBJ4: incomplete sentence	0	0%
OBJ5: use of passive sentence	24	15.5%
OBJ6: pronominal copy	31	20.1%
OBJ7: correct answer with repeated question	2	1.29%
OBJ8: double (or wrong) relative pronoun	5	3.24%
TOTAL	154	100%

As Table 5.25 shows, the most common error was 'no use of relative pronoun', comprising 37.6% of errors. This shows that the learners did not know how to create relative clauses at all and used declarative sentences. The second common error was 'pronominal copy' (e.g., the cheese that a mouse is eating the cheese, as opposed to the cheese that a mouse is eating). Even though the use of pronominal copy is ungrammatical, it shows that the learners are developing the morpho-syntactic rules of relative clauses. Also, error type 'misuse of antecedent' was also quite common. The learners did not understand the question well and answered with the wrong antecedent. The use of passive sentences indicates that the learners preferred using subject RCs when asked to produce object RCs.

5.3.4.2.3 Coding, Scoring, and Analysis of Oblique RC

Error types of oblique relative clauses were based on the error types found in Diagnostic Test. Again, unlike the Diagnostic Test, new categories (e.g. wrong antecedent, correct answer with repeated question, and double relative pronoun) were found in Experiment 2. Table 5.26 shows the error types of oblique relative clauses found in Experiment 2.

Table 5.26. Oblique RCs: Type of Error in Exp. 2

TYPES	DESCRIPTION	EXAMPLE	Scoring
OBL1	inversion of subject and verb	the music that listening the woman	1 point
OBL2	no use of relative pronoun	the woman is dancing with man	
OBL3	misuse of antecedent	the dog who is sitting in the sofa	
OBL4	incomplete sentence/skipped		
OBL5	use of passive sentence	the baby who is eh who is being cared by a woman	0.5 point
OBL6	subject (object) relative sentence	a baby that is held by a woman	
OBL7	pronominal copy	the rainbow that the woman think about the woman	
OBL8	correct answer with repeated sentence	the rainbow that the woman think of'	

As Table 5.26 shows, the coding of oblique relative clauses was coded in eight types of error. The error types of oblique RCs were scored in accordance with coding in subject relative clauses. Targetlike form was scored as zero points and non-targetlike form was scored as either a half point or one point. One point was awarded when the learners did not recognize the need of relative pronoun or when the sentence is infelicitous as an answer. A half point was awarded when the learners recognized the need of relative pronoun or the sentence produced is partially felicitous and grammatical, such as a pronominal copy. The scoring scheme for object relative clauses is illustrated in Figure 5.13.
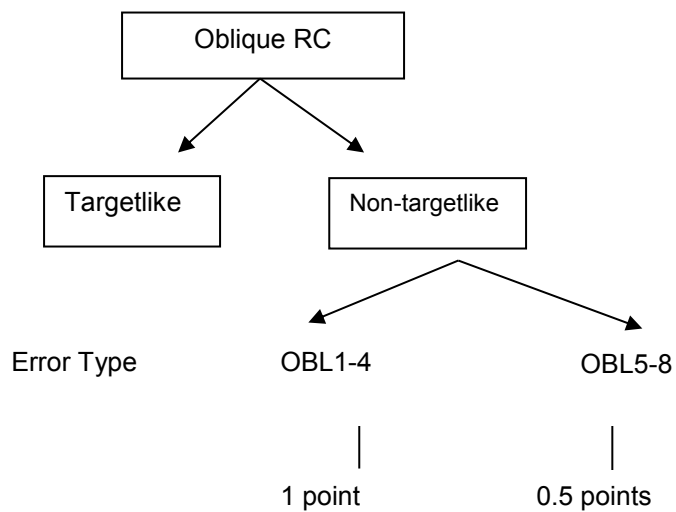
.

Figure 5.13. Scoring for Oblique RCs

Based on the coding and scoring of oblique RCs presented above, oblique RCs were analyzed. In the analysis of oblique RCs, there were a total of 154 partially targetlike or non-targetlike sentences found. The distribution of error types in oblique relative clauses is presented in Table 5.27.

Table 5.27. Oblique RCs: Error types in Exp. 2.

ERROR TYPE	FREQUENCY	PERCENTAGE
OBL1: inversion of subject and verb	5	3.24%
OBL2: no use of relative pronoun	54	35%
OBL3: misuse of antecedent	35	22.7%
OBL4: use of passive sentence	13	8.44%
OBL5: subject/object relative sentence	4	2.59%
OBL6: insertion of (pro)noun	40	25.9%
OBL7: correct answer with repeated question	1	0.6%
OBL8: incomplete sentence/skipped	2	1.3%
TOTAL	154	100%

As Table 5.27 presents, the most common error was 'no use of relative pronoun', comprising 35% of errors. Interestingly, the error type 'insertion of (pro)noun was quite common, comprising 26% of errors. The learners kept producing pronoun to mark the syntactic movement. Also, error type 'misuse of antecedent' was also quite common. The learners did not understand the question well and answered with the wrong antecedent. Overall, when compared the frequency of three relative clauses, oblique RCs and object RCs showed the same error frequency among the three types of RCs. In addition, the common error types in the three relative clauses were 'no use of relative pronoun' and 'misuse of antecedent', thus showing that some participants did not recognize the need to use RCs at all and produced merely one type of relative clauses.

5.3.5 Results of Oral Tests

Between-group and Within-Group Analysis of Relative Clauses in Two Tests

This section compares the results of the pre-test and post-test on relative clauses. The two participants that earned less than 20% of errors were excluded from the analysis. A total of

612 sentences on the pre-test and post-test were analyzed. Descriptive statistics of mean error rate are presented in Table 5.28.

Table 5.28. RCs: Mean Error Rate between Pre-test and Post-test

	Pre-test		Post-test	
	Mean	S.D	Mean	S.D
IG group	0.50	0.28	0.38	0.30
DM group	0.57	0.32	0.43	0.41
Control group	0.55	0.32	0.34	0.32

The control group did not engage the task targeting relative clauses. The IG group and the DM group engaged the task targeting relative clauses. The error rate of three groups dropped steadily on the post-test. The error rate of the pre-test was almost the same (55% in control group, 50% in one-way information gap, and 57% in decision-making) in three groups [24]. The error rate in the control group dropped slightly from 55% to 34% on the post-test, the error rate in IG group from 50% to 38% on the post-test, error rate in DM group from 57% to 43% on the post-test. The mean error rates of relative clauses in three groups are presented in Figure 5.14.
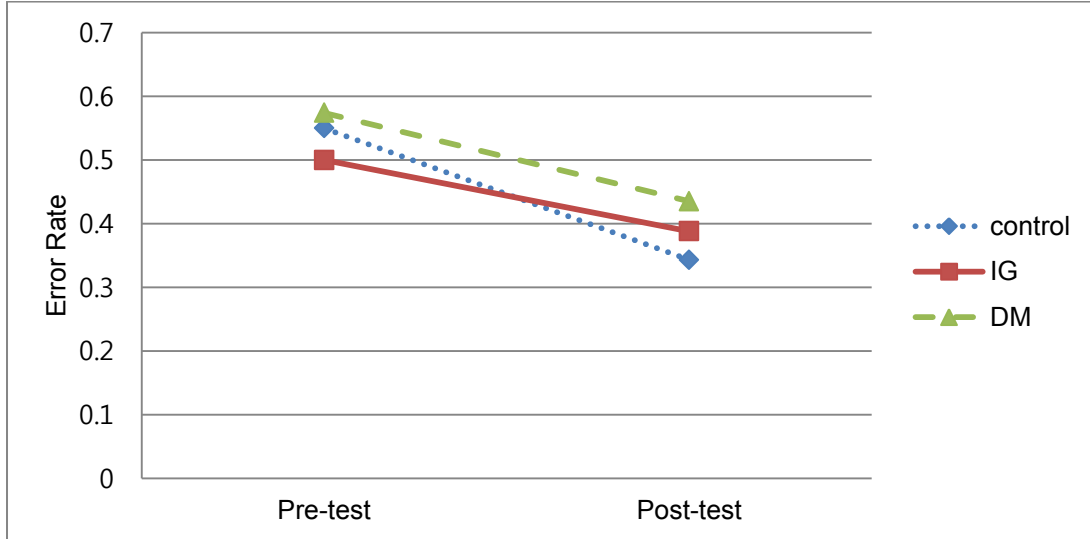
(Note: OI: one-way information gap task, DM: decision-making task)

Figure 5.14.Pre-test/Post-test of RCs in Oral Test

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[24] There was no significant difference on the pre-test in three groups (p=.86).

The scores of the 612 sentences were submitted to two- way ANOVA. The results of the pre-test and post-test are given in Table 5.29.

Table 5.29. Summary of RCs: Pre-test and Post-test in Oral Test

Factor	Type	df	Sum of Squares	Mean Square	F	p
Group	Between groups	2	0.040	0.020	0.114	.890
Time	Within groups	1	0.430	0.430	10.90	.002**
Group * Time	Interaction	2	0.049	0.024	0.631	.538

(Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1)

As Table 5.29 shows, the result showed a significant main effect of time. A two-way ANOVA with groups (the control group, the IG group, the DM group) and time (the pre-test, the post-test) as the independent variables and error rate as the dependent variable reached significant effect of time, $F(1,30)=13.20$, $p<.01$, indicating that error rate in three groups got progressively lower during the experiment.

ANOVA tests were conducted to compare the error rate between the pre-test and post-test in each group. The results show that a difference between the tests was found in the control group. In the IG group, there was no significant difference found between pre-test and post-test, $F(1,9)= 2.01$, $p=.18$. In the DM group, a significance did not reach between pre-test and post-test, $F (1,5)= 3.94$, $p=.10$. In the control group, the error rate between pre-test and post-test approached significance, $F(1,16)=6.55$, $p<.05$. These results indicate that the learners in the DM group and the control group were able to produce the correct sentences over time.

Between-group and Within-Group Analysis of Error Rates in Three Tests

Each type of relative clauses was analyzed in order to see whether the learners improved their knowledge of relative clauses in terms of the time: pre-test, post-test, and delayed post-test. The participants who earned less than 20% of errors were excluded from the

analysis, as were participants who did not participate in the delayed post-test[25]. Thus, a total of

864 sentences were analyzed. Descriptive statistics of mean error rate are presented in Table

5.30.

Table 5.30. RCs: Mean Error Rate in Three Tests

	Pre-test		Post-test		Delayed Post-test	
	Mean	S.D	Mean	S.D	Mean	S.D
IG group	0.50	0.29	0.41	0.30	0.24	0.17
DM group	0.53	0.35	0.38	0.44	0.34	0.38
Control group	0.56	0.30	0.30	0.30	0.31	0.32

Table 5.30 shows that the learners in the control, IG group, and DM group had similar error

rates on all three tests. The error rate of the pre-test was 56% in the control group, 50% in the

one-way information gap task, and 53% in decision-making task[26]. In addition, the learners in

three groups performed better on the post-test than the pre-test. Surprisingly, the error rates in

the control group were lower than the treatment group on the post-test. The mean error rates of

relative clauses in three groups are shown in Figure 5.15.

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[25] As a result, a total of four participants were excluded (two from the control, one from the IG group, one from the DM group).

[26] There was no significant difference on the pre-test in three groups (*p*=.92).
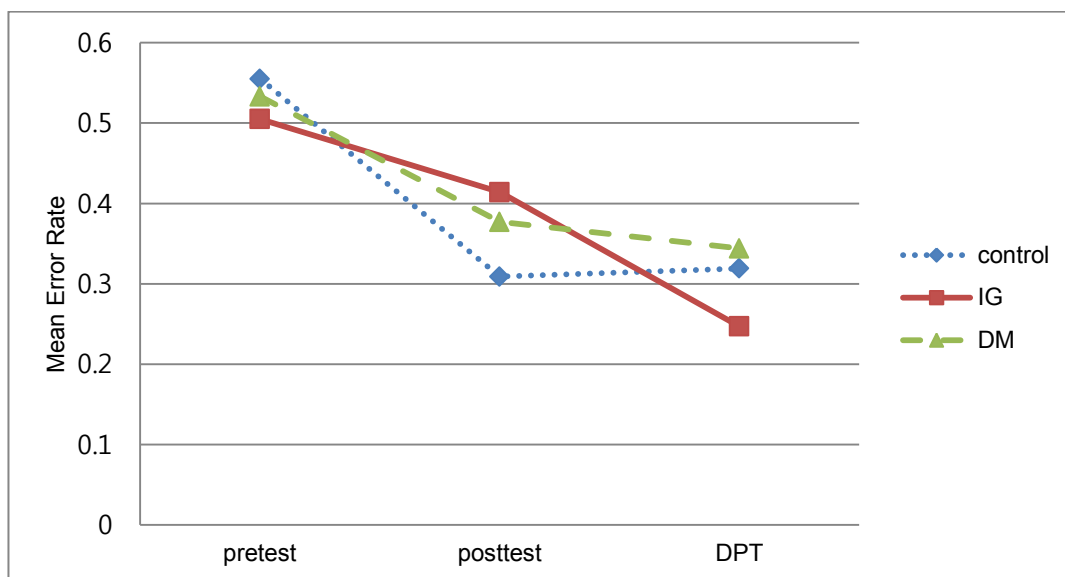
Figure 5.15. Pre-test/Post-test/DPT of RCs in Oral Test

A two-way ANOVA was conducted with time and group as the independent variable and mean error rate as the dependent variable. The results of the pre-test, post-test, delayed post-test of relative clauses are given in Table 5.31.

Table 5.31. Summary of RCs: Pre-test, Post-test, DPT in Oral Test

Factor	Type	df	Sum of Squares	Mean Square	F	p
Group	Between groups	2	0.009	0.021	0.021	.978
Time	Within groups	2	0.970	0.485	12.088	.000***
Group * Time	Interaction	4	0.128	0.032	0.799	.530

The analysis revealed that there was a main effect of time, F (2,57)= 12.08, p<.001, showing that the three groups of learners performed better over time. However, group effect was not significant, F (2, 28)=0.02, p=.98, nor was interaction effect between group and time significant. Moreover, the results of planned comparisons show some significance in each group. In the IG group, a significant difference was found between the pre-test and delayed post-test, F (1, 10)=5.36, p<.05, but no difference was found between pre-test and post-test, F(1,10)= 2.57, p=.13, and between post-test and delayed posttest, F(1,10)=2.45, p=.14. In the DM group, no

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significance was found between pre-test and post-test, $F(1,4)= 3.5$, $p=.13$, between pre-test and delayed posttest, $F(1,4)=2.33$, $p=.20$, and between post-test and delayed post-test, $F(1,4)=0.10$, $p=.76$. In the control group, differences were found between pre-test and post-test, $F(1,15)=8.98$, $p<.01$, between pre-test and delayed post-test, $F(1,15)=13.93$, $p<.01$. However, no difference between post-test and delayed post-test, $F(1, 15)=0.03$, $p=.85$.

These results can be explained in terms of repair negotiation. As discussed in past tense, the interlocutor's repair initiation in a one-way information gap task facilitates speakers to recognize their errors over time. It is interesting to note that an effect of time appeared between the pretest and the delayed post-test, rather than between the pretest and the post-test in the IG group. This tendency was opposite from the results of past tense in the IG group. These results indicate that other-initiated repair was not facilitative enough for the speaker to recognize their incorrect form right away. The speakers may possibly have recognized that their ungrammatical utterances were problematic but did not know how to create correct forms right away. In contrast, the effect of the decision-making task was not statistically significant over time. Self-initiated repair in the decision-making task was not sufficiently facilitative to make the learners to focus on the forms of relative clauses right away even though the error rate decreased over time. Overall, it can be said that one-way information gap task was more effective than decision-making task for learners to develop their knowledge of relative clauses.

Furthermore, an analysis was also conducted to compare the mean error rates in each of the relative clauses in three tests in order to see whether there is a difference regarding types of relative clauses. Table 5.32 describes the mean error rates in each of the relative clauses.

Table 5.32. RCs: Mean Error Rates in Three Tests

Test	Control Group			IG Group			DM Group		
	Sub RC	Obj RC	Obl RC	Sub RC	Obj RC	Obl RC	Sub RC	Obj RC	Obl RC
Pre-test	0.501	0.583	0.572	0.439	0.515	0.560	0.400	0.633	0.566
Post-test	0.197	0.364	0.364	0.212	0.515	0.515	0.400	0.400	0.333
DPT	0.270	0.333	0.354	0.212	0.257	0.272	0.366	0.333	0.333

As Table 5.32 illustrates, the highest error rate was recorded in object and oblique RCs in three groups. In three groups, subject RCs showed the lowest error rate in three tests. A repeated ANOVA revealed that there was main effect of RC type, $F_{(2, 62)}=4.39$, $p<.05$, showing that error rate was significantly different from type of relative clauses.

As discussed in Chapter 4, the Noun Phrase Accessibility Hierarchy (NPAH) predicts the degree of difficulty in learning RCs. That is, subject RC should be acquired more easily than object RC, object RC than oblique RC. The tendency holds true in this experiment in that the error rate in subject RC was lowest at all times, and the error rate of object RC and oblique RC was quite similar. This suggests that the learners were the most successful in acquiring subject RC but less successful in acquiring object and oblique RCs. Thus, it can be said that the Noun Phrase Accessibility Hierarchy (NPAH) hypothesis is partially supported.

Error Analysis

The data of error analysis was from the participants who participated in all three tests. Three participants who did not return for the delayed post-test and two participants who earned less than 20% of non-targetlike forms were excluded from the analysis due to a possible ceiling effect (see Jeon 2004). The participants were asked to produce nine sentences (three subject RCs, three object RCs, and three oblique RCs). As a result, a total of 864 sentences were analyzed in Experiment 2. When sentences were coded partially targetlike or non-targetlike, they were coded in terms of error types. Table 5.33 summarizes the percentage of error types in

three tests. Due to the small number of occurrences of certain categories in RC, only the main

errors were included. For example, inversion of subject and verb were excluded in Table 5.33.

Table 5.33. RCs: Percentage of Error Types in Three Tests

	Control Group			IG Group			DM Group		
	Pre-test	Post-test	Delayed post-test	Pre-test	Post-test	Delayed post-test	Pre-test	Post-test	Delayed post-test
misuse of antecedent	21.2	17.3	41.1	24.0	27.6	32.1	3.70	0	0
no use of relative pronoun (no RP)	58.8	51.9	25.4	46.2	34.0	25.0	66.6	54.5	57.9
passive	10	3.84	19.6	9.25	19.1	7.14	3.70	0	0
pronominal copy	10	26.9	13.7	20.3	19.1	35.7	25.9	45.5	42.1
Total frequency	80	52	51	54	47	28	27	22	19

As Table 5.33 illustrates, the overall frequency of error types in the three groups decreased over time in a similar way. Error type 'no use of relative pronoun' was the most common error on the pre-test in three groups. Figure 5.16 presents the percentage of error in terms of error types in the IG group.
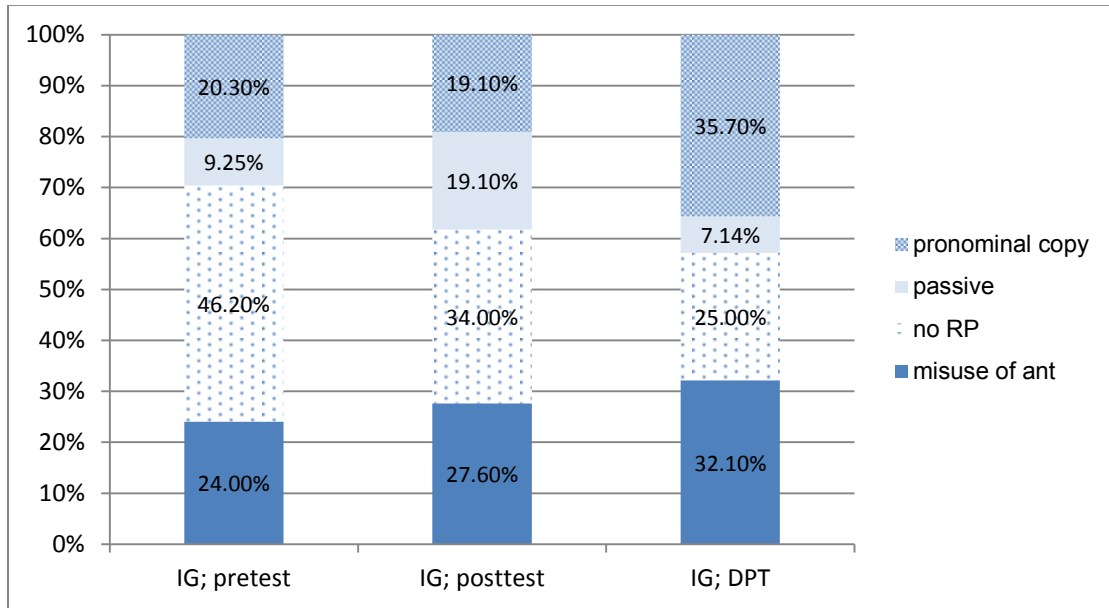
Figure 5.16. Percentage of Error Types in the IG Group

As Figure 5.16 illustrates, the percentage of 'no use of relative pronoun' progressively dropped on the post-test and the delayed post-test in the IG group. Also, the percentage of 'passive' highly increased on the post-test and percentage of 'pronominal copy' highly increased on the delayed post-test; these figures mean that the learners recognized 'no use of relative pronoun' as ungrammatical and tried to different strategies. However, the percentage of 'misuse of antecedent' maintained steadily across the test; some learners kept choosing subjects of the given question as antecedents of relative clauses regardless of questions. Figure 5.17 illustrates the percentage of error in terms of error types in the DM group.
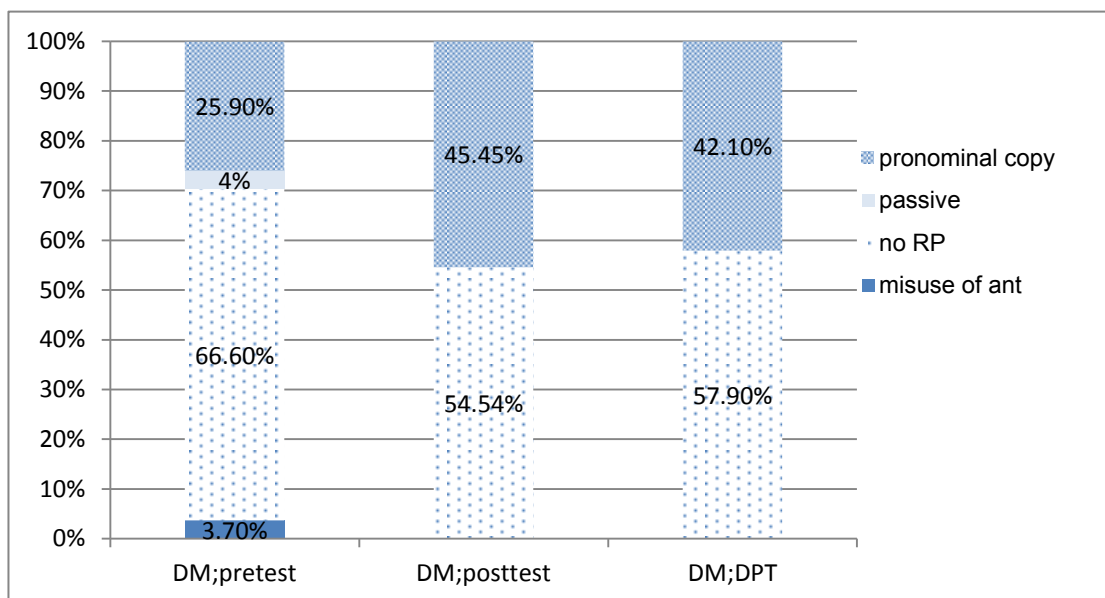
Figure 5.17. Percentage of Error Types in the DM Group

Unlike the IG Group, two error types mainly occurred over time. The percentage of 'no relative pronoun' and 'pronominal copy' occupied more than 90% of error in the three tests. The learners made same types of errors over time in their oral production. It indicates that the learners' internal grammar did not reorganize the target form fully through the treatment. Also, the frequency of errors was almost the same.

In order to see the effect of error types by each participant over time, the ICC of error categories 'no use of relative pronoun', 'replacement', and 'others' was calculated. Figure 5.18 shows the effect of the error types by the participants over time.
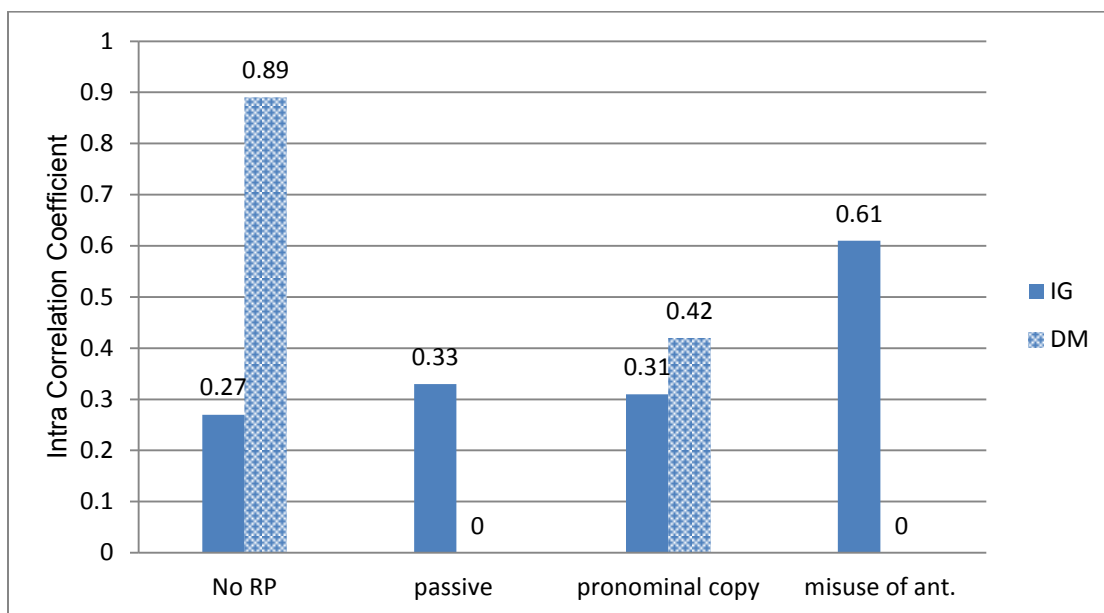
Figure 5.18. Effect of Error Types of RCs over Time

As Figure 5.18 shows, the ICC figures of 'no use of relative pronoun' in the IG groups was low, p=.12, but the ICC figures in the decision-making group was fairly high. These differences indicate that the learners in the IG group started to recognize 'no use of relative pronoun' is ungrammatical and tried not to produce on the post-test and the delayed post-test whereas the learners in the DM group used this strategy over time. The effect of 'misuse of antecedent' in the IG group was also fairly consistent. This effect indicates that the some learners made same errors repeatedly over time; they produced subject RCs all the time regardless of RC types. Also, the effects of 'passive' and 'pronominal copy' suggest that the learners did not recognize what the grammatical object and oblique RCs were. They kept using subject relative clauses when asked to produce object RCs and kept using pronominal copy in the production of object and oblique relative clauses. Even though this figure suggests that the learners did not develop their morpho-syntactic knowledge of relative clauses as much as what they did in the past tense, it is still notable that the learners particularly in the IG group attempted to produce relative pronouns to create relative clauses over time.

Furthermore, the error rates were calculated according to targetlike, partially targetlike or non-tagetlike usage for the total relative clauses usage. A total of 864 relative clauses occurred in the three tests as 288 subject RCs (185 targetlike, 20 partially targetlike, and 83 non-targetlike sentences), 288 object RCs (132 targetlike, 63 partially targetlike, and 93 non-targetlike sentences), and 288 oblique RCs (134 targetlike, 58 partially targetlike, and 96 non-targetlike). The targetlike, partially targetlike, and non-targetlike sentences were based on the scoring. A targetike sentence indicates a sentence scored with zero points, a partially targetlike sentence scored with half point, and a non-targetlike sentence scored with one point. Figure 5.19 summarizes the percentage of targetlike, partially targetlike, and non-targetlike sentences in terms of relative clauses types and groups.

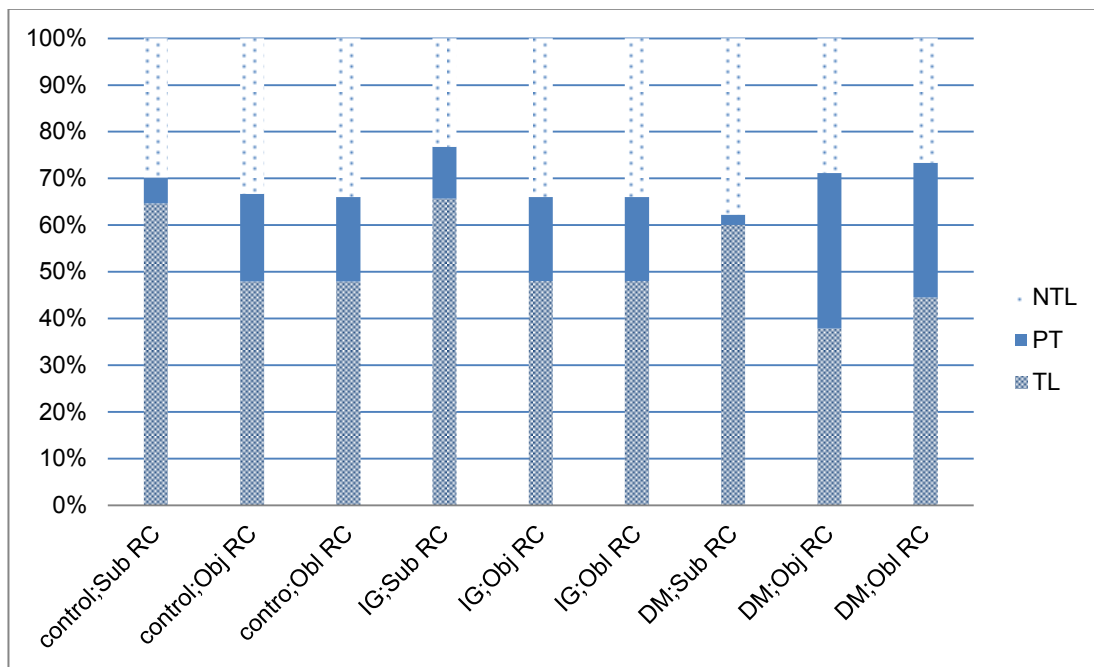Figure 5.19. Percentage of Grammaticality in RCs in Exp. 2

(TL: targetlike, PT: partially targetlike, NTL: non-targetlike)

As Figure 5.19 shows, subject RCs had the highest percentage of targetlike sentence production and object and oblique RCs had the similar targetlike sentence production in the three tests. Conversely, the percentage of partially targetlike sentences was higher in object

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and oblique RC and object RC than in subject RC. This figure indicates that the learners had better knowledge of subject RCs than object and oblique RCs, and produced somewhat dichotomously either targetlike or non-targetlike sentences. However, in object and oblique RCs, the learners could not produce targetlike sentence sufficiently. As a result, the percentage of partially targetlike was higher in object and oblique RCs. In summary, these results suggest that learners may know how to create object and oblique RCs but are confused when trying to produce them.

Summary of Oral Test: Relative Clauses

The results of relative clauses on the oral test have been presented in the previous section to answer Research Question 2 and 3. Going back to Research Question 2 and 3, Research Question 2 asked whether repair negotiation between L2 learners leads to development of linguistic targets. The results of the oral test showed that repair negotiation facilitated relative clauses learning only in the one-way information gap task between the pre-test and the delayed post-test. The reason that the effect was not significant between pre-test and post-test in the IG group and no effect in the DM group may possibly from the structural complexity of relative clauses. As mentioned earlier, relative clauses involve syntactic movement and thus learning of relative clauses through repair negotiation seems to be difficult to master in a short time. In addition, Research Question 3 asked whether type of task affects development of morpho-syntactic features. The oral test showed that the information gap task was effective on developing the knowledge of relative clauses on the delayed post-test while the decision-making task was not effective at all. Recalling that the information gap task elicited a greater percentage of OIR than SIR and vice versa in the decision-making task, it can be said that OIR allowed the learners to focus on form, though not immediately, but rather as a long term effect in the one-way information gap task. Also, SIR was not sufficient for the learners to focus on form; the learners were not sure how to create correct relative clauses by themselves in the decision-making task.

5.3.6 Written Tests: Relative Clauses

5.3.6.1 Materials

In addition to the oral test, in order to investigate the learners' receptive knowledge of the two linguistics targets, a written test was created. Each test included 108 questions, which were composed of thirty-six questions for past tense, thirty-six questions for relative clauses, and thirty-six questions for fillers. Each test included the same number of correct and incorrect sentences.

The incorrect sentences of each target were created with a basis of common error types found among L2 learners. The use of pronominal use with or without relative pronoun was included in common in all types of relative clauses. Subject relative clauses questions were created on the basis of error types, no use of relative pronoun, pronoun copy, use of regular pronoun. Object and oblique relative clauses questions were created with consideration of pronominal copy. Also, considering the fact that object and oblique relative clauses allow the omission of relative pronoun, some of object and oblique relative clauses were formed with existence of relative pronoun and some of questions were formed with omission of relative pronoun. Table 5.34 illustrates the summary of ungrammatical items of RC.

Table 5.34. RCs: Summary of Ungrammatical Items

Test Version	RC Type	Error Type (# of questions)
A, B, C	Subject RC	no use of relative pronoun (2), pronoun copy (2), use of regular pronoun (2)
	Object RC	pronoun copy with 'that' (2) pronoun copy with 'who(m)' (1) pronoun copy with 'which' (1)' pronoun copy without 'that'(2)
	Oblique RC	Pronoun copy with relative pronoun (3) Pronoun copy without relative pronoun (3)

(RP: Relative Pronoun (e.g., who(m), which, that, etc.)

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5.3.6.2 Procedures

The written test was administered using DMDX. The participants were asked to judge whether the sentences given sounded good or bad. Each question allowed ten seconds as a maximal response time. No correction was provided during the test sessions.

5.3.6.3 Scoring: Relative Clauses

The scoring of the written test was scored in terms of correctness. Incorrect sentences were further analyzed in terms of error types. The most common error types found in previous studies are repeated in Table 5.35. Again, since the previous literature deal very little with common error types of object and oblique RCs, the use of pronominal copy with or without relative pronoun was merely included in the written tests. Table 5.35 presents the error types used in the written tests.

Table 5.35. RCs: Error Types in Written Tests

RC	ERROR TYPE	DESCRIPTION	EXAMPLE
Subject RC	SUB1	no use of relative pronoun	That is a museum *is* in the middle of the town.
	SUB2	use of regular pronoun	An actress is a woman *she* plays in films or plays.
	SUB3	use of pronominal copy	This is the man who he kissed the *woman*.
Object RC	OBJ1	possible omission 'that'	We cannot accept the offer you made it
	OBJ2	use of pronominal copy with 'that'	We will stay at a hotel *that* my friend recommended it
	OBJ3	use of pronominal copy with 'which'	Cheese is a food *which* mice like to eat it
	OBJ4	use of pronominal copy with 'who(m)'	Jane is a person *who(m)* everybody likes her
Oblique RC	OBL1	use of pronominal copy with relative pronoun	This is the office *which* Tom works at it
	OBL2	use of pronominal copy without relative pronoun	I know the person Mary is speaking with him

5.3.7 Results of Written Test

Between-group and Within-Group Analysis of Relative Clauses in Two Tests

This section compares the results of the pre-test and post-test on the relative clauses in the written tests. Two participants that earned less than 20% of errors were excluded from the analysis. A total of 2304 sentences on the pre-test and post-test were analyzed. Descriptive statistics of mean error rate are presented in Table 5.36.

Table 5.36. RCs: Mean Error Rate between Pre-test and Post-test

	Pre-test		Post-test	
	Mean	S.D	Mean	S.D
IG group	0.45	0.05	0.46	0.07
DM group	0.57	0.09	0.59	0.12
Control group	0.43	0.14	0.43	0.11

The error rate of the pre-test was almost the same (43% in the control group, 45% in the IG group) in the two groups, but the error rate of the pre-test was high (57%) in the DM group[27]. The error rate between the pre-test and the post-test was quite similar. The mean error rates of relative clauses between tests are presented in Figure 5.20.
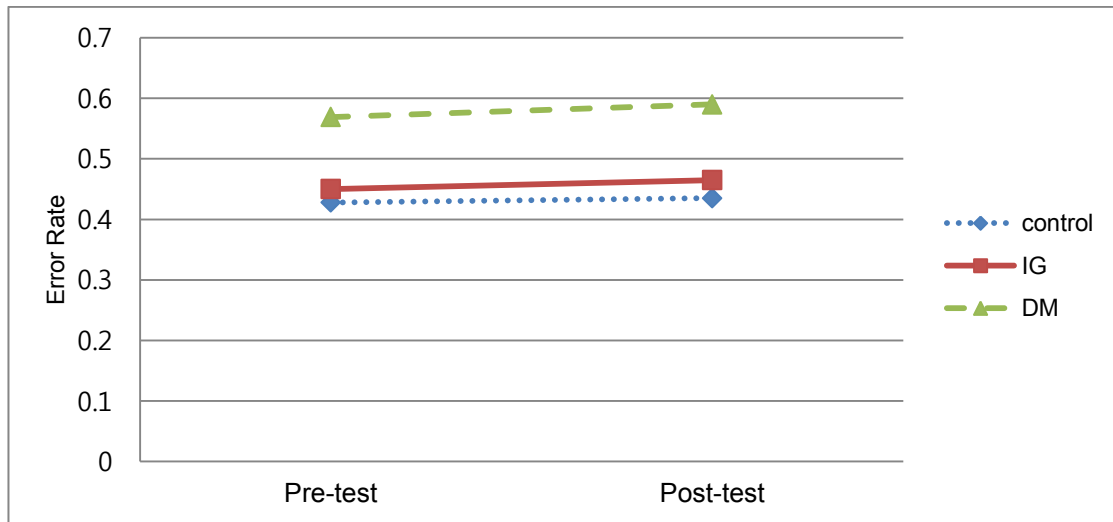

Figure 5.20. Pre-test/Post-test of RCs in Written Test

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[27] The differences of error rate between three groups closely approached significance ($p=.05$). That is, the difference between the DM group from the control and the IG groups almost reached significance.

Figure 5.20 shows that the learners did not learn relative clauses successfully. The learners in the three groups seem to show improvement between the pre-test and the post-test. The scores of 2,304 sentences on the pre-test and post-test were submitted to two- way ANOVA. The results of the pre-test and post-test are given in Table 5.37.

Table 5.37. Summary of RCs: Pre-test and Post-test

Factor	Type	df	Sum of Squares	Mean Square	F	*P*
Group	Between groups	2	0.117	0.058	5.269	.011*
Time	Within groups	1	0.000	0.000	0.136	.714
Group * Time	Interaction	2	0.007	0.003	0.593	.559

(Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1)

As Table 5.37 shows, the result showed a significant main effect of group, indicating that error rate was different in three groups. The results show significant effect of group, $F_{(2, 28)}=5.26$, $p<.05$, but no significant effect of time, $F_{(1, 28)}=0.13$, $p=.71$, indicating that error rate stayed steady during the experiment. Planned comparisons were conducted in each group. Neither of the groups had a significant difference between tests. In the IG group, no significance was found between pre-test and post-test, $F_{(1, 11)}= 0.301$, $p=.59$. In the decision-making task, no significance was found between pre-test and post-test, $F_{(1, 3)}= 0.03$, $p=.86$. In the control group, no significance was found in error rates between the two tests, $F_{(1, 15)}=0.82$, $p=.37$.

In addition, error rate of relative clauses was analyzed in terms of grammaticality in three groups. Table 5.38 shows the error rates of grammatical and ungrammatical items on the pre-test and post-test.

Table 5.38. RCS: Error Rates of Grammaticality between Pre-test and Post-test in Written Test

	Control Group		IG Group		DM group	
	Gram. items	Ungram. items	Gram. items	Ungram. items	Gram. Items	Ungram. item
Pre-test	0.251	0.642	0.153	0.745	0.319	0.819
Post-test	0.250	0.621	0.143	0.787	0.263	0.916

As Table 5.38 shows, the error rates of grammatical and ungrammatical items stayed stable over two tests. A two-way ANOVA showed that the effect of grammaticality reached significance, $F(1, 28)=140.37$, $p<.001$, indicating that the error rate of grammatical and ungrammatical items was significantly different. The learners made small errors in judging grammatical items but made major errors in judging ungrammatical items. Most of the learners accepted the ungrammatical items as grammatical. Also, interaction effect of grammaticality and group was found, $F(2, 28)=3.93$, $p<.05$. However, there was no time effect, $F(1, 28)=0.00$, $p=.99$, indicating that the learners did not gain accuracy over the tests. Planned comparisons were conducted for grammatical and ungrammatical items in each group. However, no significant gains of grammatical and ungrammatical items were found over time. In sum, the two tasks failed to facilitate the learners to notice the grammatical and ungrammatical items over time.

Between-group and Within-Group Analysis of Relative Clauses in Three Tests

Again, the participants that made less than 20% errors and those that did not participate in the delayed post-test were excluded from the analysis[28]. A total of 3132 sentences on the pre-test, post-test, and delayed post-test were analyzed. Descriptive statistics of mean error rate are presented in Table 5.39.

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[28] As a result, a total of seven participants were excluded (four from the control and three from the DM group).

Table 5.39. RCs: Mean Error Rate in Three Tests

	Pre-test		Post-test		Delayed Post-test	
	Mean	S.D	Mean	S.D	Mean	S.D
IG group	0.45	0.05	0.47	0.07	0.49	0.07
DM group	0.54	0.08	0.63	0.12	0.46	0.05
Control group	0.43	0.14	0.46	0.09	0.46	0.09

The error rate of the pre-test was 43% in control group, 45% in the IG group, 54% in the DM group [29]. In addition, the error rates remained relatively steady across tests from 45% to 47% on the post-test and 49% on the delayed post-test in the IG group, from 54% to 63% on the post-test, 46% on the delayed post-test in the DM group. The error rate in the control group remained relatively steady across three tests, 43% on the pre-test, 46% on the post-test, and 46% on the delayed post-test. The mean error rates of relative clauses in three tests are presented in Figure 5.21.
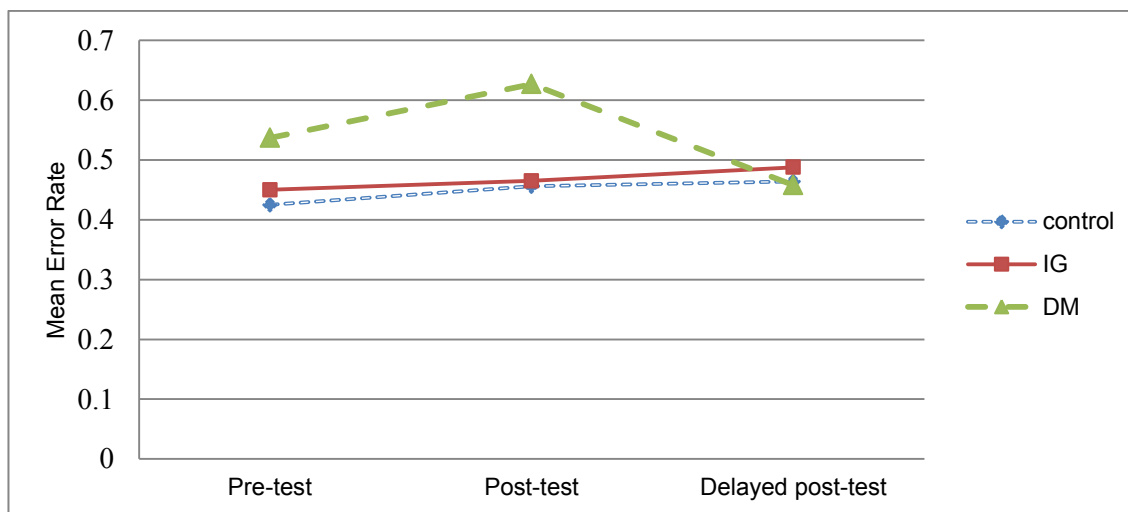
Figure 5.21. Pre-test/Post-test/DPT of RCs in Written Test

In order to measure whether the participants developed their morphological knowledge of relative clauses in the pre-test, post-test, and delayed post-test, a mixed design two-way ANOVA was conducted. The results of pre-test, post-test, delayed post-test of relative clauses are given in Table 5.40.

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[29] There was no significant difference on the pre-test in three groups (p=.24).

Table 5.40. Summary of RCs: Pre-test, Post-test and DPT in Written Test

Factor	Type	df	Sum of Squares	Mean Square	F	p
Group	Between groups	2	0.049	0.024	2.931	.071·
Time	Within groups	2	0.011	0.005	0.988	.379
Group * Time	Interaction	4	0.049	0.012	2.087	.096·

(Signif. codes: '**' 0.01 '*' 0.05 '·' 0.1)

A two-way ANOVA showed that the effect of group closely approached significance, $F (2, 25)=2.93$, p=.07, time, $F (2, 51)=0.98$, $p=.37$, and marginal interaction effect between group and time, $F (4,51)=2.08$, $p=.09$. The results show that the learners failed to pay attention to the form of relative clauses over time. This result suggests that repair negotiation did not necessarily facilitate the learners' acquisition of relative clauses. Planned comparisons were conducted in each group. The results show that no significant differences between tests were found in three groups. In the IG group, there was no difference found between the pre-test and the post-test, $F(1,11)= 0.30$, $p=.59$, between the pre-test and the delayed posttest, $F(1,11)=1.99$, $p=.18$, and between the post-test and the delayed post-test, $F(1,11)=0.88$, $p=.36$. In the DM group, no significance was found between the pre-test and the post-test, $F (1,2)= 0.58$, $p=.52$, between the pre-test and the delayed posttest, $F(1,2)=1.12$, $p=.40$, and between the post-test and the delayed post-test, $F(1,2)=8.86$, $p=.09$. No significance in the DM group was possibly due to the small number of participants. In the control group, no significance was found in error rates between tests.

Furthermore, error rates of grammatical and ungrammatical items of relative clauses were analyzed in terms of test types. Table 5.41 shows the error rates of grammatical and ungrammatical items in three tests.

Table 5.41. RCs: Mean Error Rates of Grammaticality in Three Tests

	Control Group		IG group		DM group	
	Gram items	Ungram. items	Gram items	Ungram. items	Gram items	Ungram. items
Pre-test	0.262	0.630	0.153	0.745	0.259	0.814
Post-test	0.265	0.646	0.143	0.787	0.296	0.962
Delayed post-test	0.250	0.678	0.138	0.837	0.129	0.782

As Table 5.41 shows, the error rate of the grammatical items was relatively low whereas that of the ungrammatical items was high. The learners answered grammatical items correctly but thought the ungrammatical items were grammatical. The mean error rate of grammatical items and ungrammatical items were 25.9% and 65.1% respectively in control group, 14.5% and 78.9% in the IG group, and 22.8% and 85.2% respectively in the DM group. The learners in three groups could not clearly distinguish grammatical items from grammatical items. For a comparison of the error rate of grammatical and ungrammatical items in three tests, a two-way ANOVA test was conducted. The results showed that there was significant effect of grammaticality ($F (1, 25)= 154.991$, $p <.001$), indicating that there was a statistical difference of error rate between grammatical and ungrammatical items. Based on the results, it can be concluded that the learners' receptive knowledge on the ungrammatical items was not sensitive. Also, these results indicate that learners did not acquire morpho-syntactic features through repair negotiation between them and the learners may need more explicit instructions from teachers. The d-prime (d') was collapsed across all three tests was 0.26 in the control group, 0.26 in the IG group, and -0.30 in the DM group over time. Since the d-prime in the control group was the same as in the IG group but higher than in the DM group, it can be said that the learners in the control group and in the IG group had slightly higher sensitivity to relative clauses than the learners in the DM group, and could judge whether the sentence was grammatical and ungrammatical more clearly than the learners in the DM group.

Since the error rates were calculated based on combination of the three tests, they do not show whether learners' error rates were reduced over time. Thus, relative clauses were also analyzed in terms of clause types. The mean error rates of grammatical and ungrammatical item of subject, object, and oblique relative clauses are given in Table 5.42.

Table 5.42. RCs: Mean Error Rates of RC Types

	Control Group			One-way info.gap			Decision-making		
	Sub	Obj	Obl	Sub	Obj	Obl	Sub	Obj	Obl
Pre-test	0.366	0.500	0.476	0.398	0.486	0.465	0.500	0.527	0.583
Post-test	0.410	0.505	0.452	0.430	0.486	0.479	0.666	0.638	0.573
DPT	0.375	0.446	0.571	0.451	0.486	0.527	0.472	0.416	0.482

(Note: sub: subject RC, obj: object RC, obl: oblique RC)

As seen in Table 5.42, the learners in the control and the IG group had the lowest error rates in subject relative clauses but they made more mistakes in object and oblique relative clauses than subject relative clauses. However, learners in the DM group showed an unexpected pattern in learning relative clauses; the learners in the DM group showed a similar error rate regardless of the types of relative clauses. A possible reason for this may be the small number of participants. Even though six participants engaged in the DM group, there were only three participants who participated in all three tests and made more than 20% of errors. Therefore, the small number of participants may not show clear results.

Overall, the error rates of object relative clauses were slightly higher than the rates of oblique relative clauses in three groups. According to Noun Phrase Accessibility Hierarchy (NPAH) hypothesis, relative clauses should be acquired in order of subject RCs, object RCs, and oblique RCs. The tendency holds true in that the error rate in subject RCs was less than in object RCs. However, since the error rate of object RCs and oblique RCs was almost same, this result indicates that the subject RCs are acquired most easily but not necessarily in the sequence of object RCs and oblique RCs. Thus, the NPAH hypothesis was partially supported.

Furthermore, error types and error rates were analyzed in terms of test types in order to see whether a certain error types were reduced over times in the IG group. Due to the small number of participants and no significant gain of accuracy over time, the DM group was excluded for error analysis. Table 5.43 presents the error rates in terms of error types in three tests.

Table 5.43. RCs: Mean Error Rates of Error Types in the IG Group

	Error Type	IG group		
		Pre-test	Post-test	Delayed post-test
Subject RC	no use of relative pronoun	0.333	0.354	0.416
	use of regular pronoun	0.437	0.375	0.437
	use of pronoun copy	0.430	0.562	0.500
Object RC	use of pronoun copy without 'that'	0.583	0.583	0.645
	use of pronoun copy with 'that'	0.354	0.416	0.333
	use of pronoun copy with 'which'	0.541	0.541	0.541
	use of pronoun copy with 'who(m)'	0.500	0.375	0.416
Oblique RC	use of pronoun copy with relative 'who(m)', 'which'	0.486	0.513	0.500
	use of pronoun without relative pronoun	0.444	0.444	0.555

As Table 5.43 shows, the learners' errors were scattered over all types of relative clauses and learners made high error rates in the use of pronoun copy. The results indicate that learners are confused by the use of pronoun copy. In object RCs, the error rate was lowest when the pronoun copy was used with 'that', indicating that the relative pronoun 'that' is correctly accepted by the learners. However, the highest error rate was recorded in use of pronoun copy without 'that'. The result shows that the learners did not recognize the grammatical rule that

omission of a relative pronoun is possible (e.g., this is the book I like to read) in object RCs. Also, the learners had a fairly high error rate with different relative pronouns such as 'which'. The error rates with different relative pronouns stayed the same on the pre-test but was slightly lower on the post-test when 'who(m)' was used. A possible reason for this may be the form of relative pronoun. A personal relative pronoun was written with 'who(m)' and thus the learners may have easily recognized the object relative pronoun form, whereas an object relative pronoun was written with 'which' and thus learners may not have easily recognized the form since the form 'which' is the same when appearing in subject and object cases. Even though the same form of the relative pronoun 'that' is also used in subject and object cases, the relative pronoun 'that' is frequently used in oral and written forms, and thus the learners may have easily recognized the usage of 'that'. In oblique RCs, the existence of the relative pronoun did not seem to affect the error rate; the error rate regardless of the existence of the relative pronoun stayed almost same. The overall results indicate that learners were confused with the usage of RCs and needed more time to reprocess their internal grammar of relative clauses.

Summary of Written Test: Relative Clauses

As seen above, the results of the written test do not clearly show learning of relative clauses through repair negotiation. Going back to Research Question 2 and 3, Research Question 2 asked whether repair negotiation between L2 learners leads to development of linguistic targets. The results of the written test did not show evidence for improvement. Again, learning of relative clauses through repair negotiation seems to be difficult to master in a short time. Research Question 3 asked whether the type of task affects development of morpho-syntactic features. The written test showed no significant different in any groups. Repair negotiation resulting from the speaker and the interlocutor was not enough for learners to focus on form.

5.3.8 Comparison of Oral and Written Tests for Relative Clauses

On the oral test, a total of 864 oral sentences elicited from the learners were analyzed. The results showed that the error rates of subject RCs, object RCs, and oblique RCs in the IG group and the DM group were 33.8%, 44.2%, and 43.0%, respectively. The common mistake by learners in all three relative clauses was 'no use of relative pronoun' in the oral test. The written test showed that the mean error rate of subject RCs, object RCs, and oblique RCs were 48.6%, 50.6%, and 51.8% in the IG group and the DM group, respectively. The common mistake by learners was 'use of pronominal copy' in the written test. The learners had difficulty in telling grammatical items from ungrammatical items. Specifically, they did not recognize ungrammatical sentences clearly and accepted them as correct. The results of the oral and written tests bring up some interesting points. The difference of error rate in the oral and written tests was not huge; the learners' receptive skill was not necessarily better than their productive skill. Surprisingly, the error rate of subject RCs in the oral test was lower than the written test. This fact suggests that although the learners were able to produce correct subject RCs, the learners were easily confused by the incorrect usage of subject relative clauses in the written test. Overall, the oral and written tests indicate that the learners' productive and receptive knowledge on RCs was developed in the subject RCs first. It is also notable that the learners made the highest error in 'use of pronoun copy without 'that'. This tendency indicates that the learners did not develop the rule of 'omission' in object and oblique RCs.

5.3.9 Discussion of Relative Clauses

Even though the analysis of the oral and written tests did not clearly show the main effect of treatment over time, the IG group of learners started to recognize the use of relative clauses. In general, the learners in three groups had more difficulty in producing accurate sentences of object and oblique RCs than subject RCs, partially supporting the noun phrase accessibility hierarchy (NPAH).

It is notable that the error rates of object and oblique RCs were similar. A possible reason that object and oblique RCs showed similar error rates can be explained by the SO Hierarchy Hypothesis (SOHH) (Hamilton 1994). SOHH postulates that processing difficulty is related to the number of phrasal boundaries (e.g., verb phrase or inflection phrase) that a moved element crosses in a sentence. A phrasal boundary, 'discontinuity', triggers processing difficulty. That is, the larger the number of phrasal boundaries, the more difficult it is to process. Object and oblique RCs have the same discontinuity. Specifically, the object RC, 'This is the book [$_s$ which$_i$ he [$_{VP}$ bought t$_i$]]' and the oblique RC 'This is the chair [$_s$ which$_i$ the man [$_{VP}$ is sitting on t$_i$]]' have two discontinuities since the relative pronoun 'which' crosses two phrasal boundaries, S and VP, in the object and oblique RCs. Therefore, the learners had the same difficulty in learning object RCs and oblique RCs and may have similar error rates for these two RCs.

Most of the learners in the oral and written tests kept producing relative clauses with pronoun copy. They did not seem to recognize that English does not allow pronoun copy. In particular, the use of pronoun copy appeared more in object and oblique RCs than subject RCs. This tendency is in accordance with previous studies, which found that pronoun copy is most likely to occur in OCOMP relative clauses and least likely to occur in SUB relative clauses (Gass and Ard 1984). This finding is opposite from the hierarchy of NPAH. The more the relative clauses are difficult to acquire, the more the pronoun copy is likely to appear to reduce the processing difficulty of relative clauses. It is controversial whether pronoun copy is a universal phenomenon or comes from language transfer, but some studies mentioned that pronoun copy is universal phenomenon of interlanguage (Hyltenstam 1984; Yip and Matthews 1991).

The reason that a clear main effect of group did not appear may be from the duration of treatment. Since the duration of treatment was relatively short, when compared to previous studies (Adams 2004), it may not be sufficient for learners to reorganize the learners'

interlanguage system of three types of relative clauses completely during the treatment. Also, it can be explained in terms of low perceptual saliency due to the structural complexity. The reason that the relative clause has low perceptual saliency may from the variant forms (e.g., who(m), which, that, etc.) depending on animacy and cases. Also, some types of relative clauses (e.g., object and oblique RCs) involve omission of a relative pronoun while moving *wh*-phrase to the spec of a complementizer phrase (CP). The variability of relative pronouns (e.g., absence or presence of relative pronoun), which has the same meaning in relative clauses, makes it difficult for learners to acquire RCs.

Finally, it may be due to learners' readiness. The results of the oral and written tests show not much improvement over time. The results may suggest that the learners were not ready to acquire this target. Since this experiment engaged learning between dyads, there was no explicit instruction despite the structural complexity of relative clause. The learners did not know how to modify their utterances appropriately when the speaker needed to clarify their utterances and the interlocutor initiated repair. These results show that explicit rule teaching of relative clauses is needed. In summary, the structural complexity as well as learners' readiness may have prevented the learners from learning the three types of relative clauses.

5.4 Comparison of Two Linguistic Targets in Experiment 2

Experiment 2 focused on the language development of past tense and relative clauses through repair negotiation in the pre-test, post-test, and delayed post-test. In the analysis of the oral test, a few interesting facts were found. As mentioned in the Diagnostic Test, the results showed that the error rates for past tense in three groups were higher than for RCs. The results may indicate that learners had difficulty in choosing the correct form of past tense. The learners needed to figure out the type of verb and apply the right rule. However, as discussed earlier, the learners made errors frequently by not marking the past tense morpheme.

In the analysis of the written test, a few interesting facts were found. As mentioned in the previous section, the error rate of past tense was lower than the one of RCs, resulting in

d'=1.07 and d'=0.22 in the treatment group, respectively. This tendency is the opposite of the results from the oral test. The written test results indicate that the learners had better receptive knowledge of past tense than relative clauses. The items given were furthermore compared in terms of grammatical and ungrammatical items. In particular, the error rates of ungrammatical items in RCs were quite high, ranging from 63% to 96.2% in three tests. These results show that the learners did not distinguish grammatical items of RCs from ungrammatical items of RCs sharply. Most of the learners were confused with the use of pronominal copy. They thought that pronominal copy was grammatical, showing insensitivity on ungrammatical rules.

Taken all together, the results of the oral and written tests with regard to the two linguistic targets were different. The possible reasons for these differences may come from the use of different scoring. The oral test scored 'the use of pronoun copy' partially correct whereas the written test scored it incorrect. Considering the fact that the proportion of partially correctness was the higher in object and oblique RCs than subject RC in the oral test, the results suggest that the learners acquired subject RCs clearly, but they were confused with usage of object and oblique RCs; the learners had more difficulty in learning object and oblique RCs than subject RCs. Thus, the NPAH hypothesis was partially supported.

In addition, Experiment 2 involved two types of tasks to see whether the type of task influences language development. It was hypothesized that a decision-making task would lead to morpho-syntactic development more than a one-way information gap task in that the speaker of SIR recognizes a mistake in his/her own utterances and initiates repair by his/her self. However, this hypothesis was not supported. The error rates of the two linguistic targets were lower in the one-way information gap task than the decision-making task, particularly on the post-test. Even though SIR occurred in the decision-making task the most, the interlocutor did not confirm what the speaker said or request clarification despite mistakes produced by the speaker since both of them held the same information, which led the learners to move on through the interaction without complete understanding. Thus, it can be concluded that one-way

information gap tasks triggering confirmation checks and clarification requests led more successfully to the development of learners' internal grammar of two linguistic targets than the decision-making task.

5.5 Summary of Research Results

The descriptions, analysis, and the results of Experiment 2 have been illustrated in this chapter in order to answer the research questions of whether repair negotiation between non-native speakers leads to language development. The summary and results of Research Question 2 and 3 are presented in Table 5.44.

Table 5.44 Summary of Experiment 2

Research Question 2		
Does repair negotiation between L2 learners lead to development of linguistic targets? If so, are the morpho-syntactic feature of past tense and relative clauses developed effectively through repair negotiation?		
Results		
Linguistic Target	Test Type	Findings
Past Tense	Oral Tests	Repair negotiation between NNS-NNS may promote production of past tense more accurately but treatment effect was not significant.
	Written Tests	Repair negotiation between NNS-NNS facilitates past tense reception more accurately.
Relative Clauses	Oral Tests	Repair negotiation between NNS-NNS does not promote accurate production of relative clauses.
	Written tests	Repair negotiation between NNS-NNS does not promote accurate reception of relative clauses.

Research Question 3
Does type of task affect development of morpho-syntactic features?
Results
Error rate of the one-way information gap task was different from the decision-making task in both oral and written tests. Overall, the error rate of one-way information gap task promotes the learning of past tense and decision-making task more effectively than decision-making task.

As Table 5.44 illustrates, past tense was more effectively developed than the relative clauses through the repair negotiation. In particular, the learners in the treatment group were clearly able to recognize the ungrammatical items from the grammatical items on the written tests. In addition, the learning effect in the treatment group was different with regard to task types. The learning effect of the IG group appeared on the post-test whereas the learning effect of the DM group appeared on the delayed post-test. The next section presents the results of the analyses with in-depth discussion.

CHAPTER 6

DISCUSSION AND CONCLUSION

The purpose of this study was to investigate repair negotiation between non-native speakers in a laboratory context. Repair negotiations have been studied as a subset of Long's (1996) Interaction Hypothesis in second language acquisition (SLA), which claims that negotiation for meaning involving modified input by the native speaker to make the non-native speaker understood, allows the learners to connect input, draws selective attention, and produce output. Many studies have focused on repair negotiation between native speakers and non-native speakers, showing positive effects of language learning (Iwashita 2003; Long 1981, 1983a, 1983b, 1996; Lyster & Ranta 1997; Mackey et al., 2003; McDonough 2007). However, less attention has been given to repair negotiation between NNS-NNS and to what extent repair negotiation leads to improved development of the second language. Therefore, this study helps fill this gap in the literature by considering repair negotiation in L2 learners' dyadic interaction and by investigating the language development of certain linguistic targets resulting from repair negotiation. This study targeted ESL students in a university and employed a pre-test, post-test, and delayed post-test to evaluate the improvement of the two linguistic targets through repair negotiation. Specifically, the current study focused on three research questions. The three research questions of this study are given below.

1. Does a certain type of task result in different production of repair organization?
2. Does repair negotiation between L2 learners lead to development of linguistic targets? If so, are the morpho-syntactic feature of past tense and relative clauses developed effectively through repair negotiation?

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3. Does type of task affect development of morpho-syntactic features? If so, to what extent are morpho-syntactic features of L2 learners developed from different types of tasks?

To insure understanding of the research question for discussion purposes, each one is summarized with findings. The first research question asked about the relationship between types of task and repair initiation. To answer this question, three types of tasks were chosen: a one-way information gap task, a jigsaw task, and a decision-making task. It was hypothesized that a one-way information gap task would mainly produce other-initiated repair since the interlocutor initiated the repair, whereas a jigsaw and a decision-making task would produce both self-initiated and other-initiated repair. The result showed that the frequency of SIR was evenly elicited regardless of the type of task, whereas the frequency of OIR showed a significant difference in the three tasks. OIR sequences were influenced by the type of task, showing that the one-way information gap task elicited OIR the most, the jigsaw task second, and the decision-making task the least. When comparing the percentage of SIR and OIR, the one-way information gap task elicited OIR the most and the decision-making task elicited SIR the most. Thus, repair negotiation was influenced by the type of task. Based on the results of Research Question 1, one-way information gap task and the decision-making task were chosen to answer the second and third research question.

The second research question asked whether repair negotiation would improve L2 learners' morpho-syntactic knowledge. It was hypothesized that repair negotiation between L2 learners would lead to development of acquisition of the two linguistic targets. Furthermore, this study hypothesized that the learning effects of the linguistic targets would not be the same; the learning of past tense was expected to develop more easily than relative clause. To answer this question, the research employed a pre-test, post-test, and delayed post-test design to compare the error rates of each test between a control and treatment group. As discussed in the Chapter 5, the results of this study showed a mixed pattern with regard to learning facilitated by repair negotiation between L2 learners. The findings showed that the error rates of past tense

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deceased over time, particularly in the written test. Also, the learners in the treatment group felt the need to mark past tense and did not attempt to use present tense. The results imply that repair negotiation facilitated learners to develop their reception of past tense morphology. However, the error rates of relative clauses did not decrease in the three tests. The overall findings suggested that the treatment was more effective in past tense than relative clauses. The findings indicate that morpho-syntax knowledge seems to be impervious to the treatment effect (see Adams 2004).

The third research question asked whether type of task affects development of morpho-syntactic features. It was hypothesized that learning resulting from self-initiated repair would have a more positive effect than that found in other-initiated repair. Recalling that the decision-making task elicited self-initiated repair and the information-gap task elicited other-initiated repair the most, the error rates of the two linguistic targets in the one-way information gap task and decision-making task were compared. The findings show that the information gap task was more effective on the post-test but decision-making task was more effective on the delayed post-test. The overall results of task type indicated that a one-way information gap task was more effective on the post-test in that other-initiated repair allowed learners to focus on form in communication and modify their output immediately. However, the decision-making task predominantly involved self-initiated repair and the speakers did not initiate and repair their utterances unless they recognized some mistakes in their utterances on their own. Thus, the effect of treatment was not significant on the post-test. With these results, the current study offers a few implications for second language learning and teaching.

The following section will discuss the results more in depth with explanations to clarify some possible factors that may influence repair negotiation between L2 learners. The past tense will be discussed separately in 6.1., and relative clause in 6.2. Additionally, the discussion of effectiveness of task types will be discussed in 6.3, and the implications in 6.4.

<u>6.1 Past Tense</u>

Past tense was chosen as a linguistic target in Experiment 2 in order to see to what extent morphology can be developed through repair negotiation between learners. To review, in the oral test, no significant treatment effect was found between groups, even though the error rates of past tense decreased in three tests. This finding is similar to Adams (2004, 2007)'s findings about the effect of interaction with non-native speakers. Adams (2004, 2007) found that there was an effect of test type, showing that the learners of both groups performed better on the post-test than pre-test, but the treatment effect was not significant. Adams (2004) discussed that the forms of past tense have a low saliency and thus interaction between non-native speakers may not facilitate the acquisition of forms with low saliency such as past tense or preposition. The written test of this study showed a similar tendency to that of the oral test. No significant treatment effect was found but the test was beneficial in differentiating grammatical and ungrammatical items. In particular, the learners of the treatment group were able to recognize ungrammatical items correctly over three tests, which show that learners were able to distinguish between grammatical and ungrammatical items clearly.

Moreover, the learners in the treatment group developed the knowledge that 'no marking' is not an acceptable form of past tense, thus reaching significance. Specifically, 'no marking' occurred in the regular verbs. Since the form of past tense of regular verb is formed by adding –*ed* after the verb stem, the form of regular verb is not salient when compared to the form of irregular verb. Some research has argued that the regular past tense is a 'rule-based' form and has high regularity but low saliency and low communicative value. In contrast, the irregular past tense is an 'item-based' form with high saliency and frequency but low regularity (DeKeyser 1998; Ellis 2005, 2007; Salaberry 2000; Yang and Lyster 2010). Furthermore, Yang and Lyster (2010) explain the differences in the processing of regular and irregular verb types on the basis of Skehan (1998)'s dual-mode system. They argue that a regular verb is difficult to access during online communication due to internal computation whereas an irregular one is

easy to retrieve since it is item-based with no computation. In this respect, recognizing the use of 'no marking' plays an important role in developing a 'rule-based' system since 'no marking' occurred mostly in regular verbs. The fact that the learners' recognition of not using present tense of regular verb shows that they started to develop a 'rule-based' system of past tense verbs. Evidence for a rule-based system of past tense was found in the written test, but not in the oral test. No effect in the oral test seems to be natural in that reception generally precedes production. Thus, as Adams (2004) mentioned, repair negotiation between non-native speakers is not pervasive enough for learners to produce the correct form of past tense. Alternatively, the results of the oral tests may indicate that learners may need more time to restructure their knowledge of past tense and produce the correct forms. However, it is still notable that the error rates of 'no marking' significantly decreased in the treatment group in the written test.

6.2 Relative Clauses

Relative clauses were chosen as another linguistic target in Experiment 2. To review, in the oral test no significant treatment effect was found even though the error rates in the treatment group dropped slowly over three tests. The error rate of subject RCs was lowest and that for object and oblique RCs was quite similar, supporting the Noun Phrase Accessibility Hierarchy (NPAH) hypothesis. However, the written tests showed some variable tendency compared to the oral test; the treatment effect in the written test was not as significant as in the oral test. Most of the learners had a poor receptive knowledge of relative clauses. They often judged the ungrammatical sentences as being grammatical, with a very low d-prime index. For example, they made an error by choosing a pronominal copy of relative clauses as grammatical. Finally, it is notable that the error rate of object and oblique RCs were quite similar. This finding was congruent with Izumi (2003)'s study. His study also found that the accuracy scores were significantly different between subject RC and object RC and between subject RC and oblique RC in the oral and written tests, but no significant difference was found between object RC and oblique RC, partially supporting the NPAH. Izumi (2003) investigated relative clause acquisition

in relation to matrix position and relative clause type, with three major hypotheses, which were the Noun Phrase Accessibility Hierarchy (NPAH), and the SO Hierarchy Hypothesis (SOHH).

The SO Hierarchy Hypothesis (SOHH) predicts that processing discontinuity arises when RCs are formed by center embedding or cross a phrasal boundary, such as a verb phrase (Hamilton 1994). SOHH posits that the more the phrasal boundaries exist between relative pronoun and trace in RC sentences, the more difficult it is to process. According to SOHH, an OS sentence type, e.g., 'This is the man [who$_i$ [$_s$ t$_i$ entered the room]]' is easier than an OO e.g., 'This is the book [$_s$ that$_i$ he [$_{VP}$ bought t$_i$]]' and SS since the OS sentence includes one discontinuity whereas the OO and SS types include two discontinuities. Since the current study only includes OS and OO, the results of this study are not accounting for SOHH fully (see Izumi 2003). However, even though SOHH merely discusses four sentence types (OS, OO, SS, SO), the reason that the error rate of oblique RCs has a similar error rate to object RCs can be explained by SOHH. The object and oblique RCs have the same discontinuity in this study. Specifically, object RCs, 'This is the book [$_s$ that$_i$ he [$_{VP}$ bought t$_i$]]' and oblique RCs 'This is the chair [$_s$ that$_i$ the man [$_{VP}$ is sitting on t$_i$]]' have two discontinuity since the relative pronoun 'that' crosses two discontinuity, S and VP, in object and oblique RCs. Thus, it suggests that the learners may have the same difficulty in learning object RCs and oblique RCs.

However, unlike Izumi (2003)'s finding that accuracy scores was higher in the written test than in the oral test, this study does not show differences of error rates between oral and written tests. The learners in this study made similar error rates on the two tests. The high error rates of the written test may come from the fact that most of the learners misjudged the RCs with pronominal copy as correct. Pronominal copy was awarded a half point in the oral test whereas it was awarded one point in the written test. Thus, the different scoring of the oral and written tests may have resulted in similar error rates. The production and reception of pronominal copy is quite common in the L2 English learners. There are two possible ways to look at why pronominal copy occurs in relative clauses. First, it could be from L1 transfer (see

Schachter 1974). Some languages allow pronominal copy in specific types of relative clauses. For example, Chinese allows either gap or pronominal copy in indirect object, oblique, and genitive RCs, but not in subject and object RCs. Also, Arabic languages allow pronominal copy in direct/indirect object, genitive RCs, but not in subject RCs. In contrast, English does not allow pronominal copy in any type of relative clauses. Considering the fact that pronominal copy is more acceptable or producible in object and oblique RCs, the learners from Chinese or Arabic language speaking countries in this experiment may transfer their L1 linguistic structures to L2 English. A second possible reason for pronominal copy could be that the use of pronominal copy is universal in language acquisition. That is, pronominal copy is common to language learners regardless of learners' L1. Some research has shown that pronominal copy among L2 learners is a common phenomenon, especially when RCs are positioned on the right side of NPAH, such as genitive or oblique RCs (Ioup & Kruse 1977; Keenan & Comrie 1977), due to structural complexity. Considering the results that show that learners produced pronominal copy more often on object and oblique RCs than subject RCs, the use of pronoun copy, as a means of reducing processing cost, may also be explained by language universal. Thus, the use of pronominal copy suggests the possible reason of the similar error rates of the oral and the written tests as well as the similar error rates of object and oblique RCs.

6.3 Effect of Task Types

Given that the current research focused on clarifying to what extent repair negotiation between language learners facilitates L2 learners' morpho-syntactic development, it was necessary to investigate how different types of tasks influenced L2 morpho-syntactic learning through repair negotiation between learners. Even though the results of this research did not address the causal relationship between task type and L2 morpho-syntactic development, some quantitative findings would be useful to infer a possible relationship between the task types and L2 morpho-syntactic development.

The effect of task types and negotiation of meaning

Since the 1970s, considerable attention in SLA research has been given to the effects of task types on negotiation of meaning and learning opportunities. Some studies investigated which type of task generates more negotiation of meaning and found that closed-ended, problem-solving, and information-gap tasks generate more negotiation since the tasks require relatively more accurate information than open-ended discussion in general (Ellis 2003; Gass et al., 2005; Long 1980; Pica et al., 1993; Varonis & Gass 1985b).

Even though these studies suggest which type of task facilitates more negotiation of meaning, very few studies have considered the relationship between repair negotiation and types of tasks. With the notion in mind that types of task are differentiated in terms of interactant relationship, this study hypothesized that a type of task would influence production of a specific type of repair, which in turn would result in a different learning effect. For example, as seen in Experiment 1, the information-gap task led the learners to produce a greater percentage of other-initiated repair over self-initiated repair, whereas the decision-making task led them to produce a greater percentage of self-initiated repair over other-initiated repair. This study also hypothesized that decision-making tasks resulting in self-initiated repair would have a better learning effect than one-way information gap tasks resulting in other-initiated repair since self-initiated repair occurs in the context where learners initiate their utterances resulting from their recognition of their mistakes while other-initiated arises from the interlocutor, not from the speaker, so the learners may not necessarily notice their faulty utterances despite their interlocutor's repair initiation.

Overall, the results of the current study have shown that a one-way information gap task is more effective for learners to recognize and produce the two linguistic targets than the decision-making tasks, particularly on the post-test. These findings are congruent with Gass et al. (2005)'s study. For the two linguistic targets in this study, the learners of a decision-making task showed no significant effects on the post-test after the treatment, but a possible effect on

the delayed post-test. As discussed in Chapter 3, in the decision-making task, self-initiated repairs occurred quite frequently, but other-initiated repair did not. In other words, negative feedback (e.g., pardon? What did you say? etc.) from the interlocutor did not occur very much. Thus, unless they recognized their mistakes and tried to fix them on their own, the learners did not recognize and produce the grammatical forms of the two linguistic targets. Example (6.1) presents a self-initiated repair of two learners in the decision-making task.

(6.1) (Learner 1 & 2: share some information)

1→   Learner 1:he got, his first job *he's a saleman a sales man* and he had like new so he travel by train, plane around the world to meet like uh custom office people

2   Learner 2: and in 1980 he got a first job and but, and he become salesman but he has to speak another language

3   Leaner 1: huuu

4→   Learner 2: and *she uh he*, he travel he travel another country.

As shown in Example (6.1) Learner 1 generally used past tense correctly whereas Learner 2 rarely marked past tense. The learners in this task changed their utterances when the lexical meaning was not correct even though past tense was targeted in this task. In line 1, Learner 1 initiated the repair and fixed it on his own. Also, in line 4, Learner 2 initiated repair about the use of the pronoun rather than the past tense and kept using present tense. Even though Learner 2 made errors in marking past tense, Learners 1 acknowledged it and did not initiate repair at all. Thus, the decision-making task did not trigger other-initiated repair as much since the learners could understand each other by holding the same amount of information.

In contrast, the one-way information gap task triggered other-initiated repair more since only one person held the information. The interlocutor's repair initiation allowed the speaker to pay attention to the forms of two linguistic targets, leading to the production of modified output.

Thus, producing and listening to modified utterances allowed the learners to develop their morpho-syntactic knowledge of the two linguistic targets. Example (6.2) is taken from the one-way information gap task. The learners in this task were engaged in a picture description task with relative clauses.

(6.2) (Learner 1: Information giver, Learner 2: Information requester)

1   Learner 1: next ok circle a girl who is running

2→   Learner 2: *running?*

3   Learner 1: in co- in contrast, the boy that is running

4   Learner 2: is he running behind uhmm the girl?

5   Learner 1: which girl?

6   Learner 2: the girl that's uhh that's the running

7   Learner 1: mm no, ok I will repeat the question.

8   Learner 2: mm. ok

9   Learner 1: circle a girl who is running in construct[*intended meaning: contrast*]
          the boy that is running to

10→   Learner 2: *contrast? did you see, you said ?*

11   Learner 1: ok circle a girl who is running in different way to the boy that is
          running to

12   Learner 2: does she is she, she's girl, right.

13   Learner 1: yes

As Example (6.2) shows, Learner 2 initiated repair a few times to clarify what the speaker said. However, both of them were confused and Learner 1 tried to describe the picture in different ways. In lines 1 to 3, Learner 1 said "circle the girl who is running in contrast the boy is running". However, Learner 2 did not understand well and Learner 1 described again in line 9 and 11. Thus, other-initiated repair (OIR) provided an opportunity to create more clear and accurate

sentences. OIR made the information holder try out new utterances with modification by focusing on the language target.

In sum, the one-way information gap task was generally more effective than the decision-making task since the error rate on the one-way information gap task was lower than the one of the decision-making task. However, this result does not mean that a decision-making task is not effective at all. The error rate of the one-way information gap task was lower on the post-test than the one on the pre-test, but the error rate increased again on the delayed post-test, whereas the decision-making task showed an opposite pattern. The error rate of the decision-making task was unexpectedly higher on the post-test than the one on the pre-test, but the error rate decreased on the delayed post-test. The higher error rate of the decision-making task on the post-test indicates that the learners of the treatment group may have experienced 'destabilization' and needed time to restructure their internal grammar (see Adams 2004). Thus, the results indicate that task type affects the learners' system of past tense differentially. The information gap task was effective in the short term, showing that other-initiated repair led speakers to retrospectively consider their previous utterances and modify their utterances. However, the decision-making task was effective in the long term, showing that self-initiated repair led learners to monitor their utterances on their own without interlocutor's assistance.

<u>6.4 Implications</u>

Theoretical implications

This study demonstrated the benefits of repair negotiation between L2 learners with empirical support for the Interaction Hypothesis in a NNSs' context. As discussed in Chapter 1 and 2, the Interaction Hypothesis focused mainly on the benefits of interaction between NS and NNS. The current research contributed to a new application of the Interaction Hypothesis in a NNS-NNS context in a laboratory setting. The present study investigated the amount of L2 learners' self-initiated repair and other-initiated repair in three tasks. As discussed earlier, L2 learners have been considered as the ones who need correction or feedback by a native

speaker or a more proficient non-native speaker. In most research, a NS interlocutor was the one who initiated repair concerning the trouble source of the learner's utterance, and the L2 learner was the one who responded with a repair. As opposed to the previous research, the current research provides evidence that learners employ a number of repair initiations. Also, the result in the current study--that self-initiated repair was elicited regardless of types of task-- shows that learners monitor and control their utterances at all times, which may promote learning.

The current study also benefits research on the development of morpho-syntactic knowledge through repair negotiation in task-based interaction. As discussed above, repair negotiation between NNSs may not be immediately helpful. In particular, considering the fact that the learners from the decision-making task showed little development on the post-test, they may need more time to develop their morpho-syntactic knowledge. Also, the results showed that repair negotiation between NNS-NNS has differential effects of repair negotiation; the two linguistic targets (past tense and relative clauses) showed differential effects. Furthermore, morphological knowledge was acquired more effectively than morpho-syntactic knowledge. The learners felt the need to mark past tense over time instead of present tense. Considering the fact that the most common error with past tense was the use of present tense, the decrease of using present tense in the past tense context offers a desirable indication that learning of morphology can benefit from task-based interaction. In contrast, the morpho-syntactic form (e.g., relative clauses) was not effectively acquired through repair negotiation. Thus, the results of relative clauses may indicate that some explicit or implicit instruction is needed to increase the chance that learners will focus on form in learning relative clauses. Jeon (2004)'s study found that interactional feedback (e.g. recast) from a teacher improved L2 Korean learners' relative clause learning. Therefore, when planning for the classroom, teachers need to consider the use of various instructional techniques, including explicit and implicit instructions, to help their students' L2 morpho-syntactic development. Although the repair negotiation between NNS

promotes learning less efficiently in a short time, as compared to NS-NNS, the results of the current study indicate that repair negotiation allow NSSs to still control their input and output on their own, leading to language development.

Pedagogical Implications

Since the interactions between L2 learners naturally involve a great deal of repair negotiation, the results of the current study provide significant pedagogical implications for non-native speakers' repair negotiation. First, the learners used other-initiated repair in the one-way information gap and jigsaw task quite frequently. Other-initiated repair provides the speaker with an opportunity to produce or modify his/her output, which may promote language learning. In this respect, repair initiation holds an important value as much as repair completion in SLA, indicating that L2 learners can monitor and handle communication problems successfully. Second, the findings of this research indicate the benefits of one-way information gap tasks, jigsaw tasks, and decision-making tasks in relation to repair initiation. Since a one-way information gap task and jigsaw task elicited both other-initiated repair and self-initiated repair, they would be beneficial to learners who need to focus on both their own and their interlocutor's utterances. In contrast, since the decision-making task predominantly elicited self-initiated repair, it would be useful for learners who need to focus more on their own utterances.

Furthermore, as found in Experiment 2, the one-way information gap task was more effective on the post-test than the delayed post-test. In contrast, the decision-making task was more effective on the delayed post-test than post-test. These findings may indicate that the differential effect of short-term and long-term memory; the effect of other-initiated repair resulting from the one-way information gap task merely remained in the short-term. Conversely, the effect of self-initiated repair resulting from the decision-making task did not occur in the short-term but did finally occur in the long-term. Thus, classroom teachers need to consider the characteristics of task types and choose appropriate tasks which fit the academic goals, student proficiency levels, and time that can be spent.

6.5 Limitations

Along with the contributions of this study to SLA, certain limitations foster the need for future research. First, the total number of participants in this study was too low to enable a lot of statistical power. Twenty-two learners participated in Experiment 1 and thirty-six learners participated in Experiment 2 (eighteen learners in the control group and eighteen learners in the treatment group). As mentioned in Chapter 3 and 5, the participants of Experiment 1 and Experiment 2 were paired with same proficiency but different L1 background. These conditions made this research controlled but limited in recruiting more participants. Thus, additional studies and more participants are needed to better investigate this issue.

Second, the setting of experiments could be an important factor that influences the results of this study. This study has been conducted in a laboratory setting outside of a classroom. As some studies show, the effects of research in experimental settings are different from that of research in classroom settings (Nunan 1991; Forster 1998; Nicholas, Lightbown, & Spada 2001). Such studies suggest that laboratory settings are different from classroom settings in that the variables of laboratory settings are more tightly controlled. Also, the learners attended less to the forms of language in the classroom settings when compared to the dyadic interaction in the experimental settings (Ellis et al., 2001; see Gass et al., 2005). In addition, familiarity between learners may have influenced the effect of learning. Unlike regular classroom setting where the learners have at least a passing acquaintance with each other, some pairs were paired by the researchers. Thus, the results of this study may be different from that found in classroom settings.

Third, the treatment session in Experiment 2 had only one session of fifteen to seventeen minutes in total. The learners in the treatment group had only one activity targeting either past tense or relative clause. When compared to other studies that had two to three sessions, the treatment time was relatively short. However, it was inevitable to minimize the treatment time since this research was designed to take a maximum of two hours in a laboratory

setting including a treatment and the pre-test, post-test and delayed post-test. The results of less effect, particularly in relative clauses, may be from the short treatment time. Assuming that the time of treatment was sufficient for the learners to focus on form, some learners may have needed more time to stabilize their morpho-syntactic knowledge of past tense and relative clauses. It is possible that with more sessions of treatment the results could have been more effective.

Finally, the current study investigated the effects of treatment on only two linguistic targets in morphology and morph-syntactic areas. The difference in error rate between past tense and relative clauses on the post-test and delayed post-tests suggest differential learning effect. For instance, the results of the current study showed that repair negotiation between learners was more effective in morphology of past tense learning than relative clauses learning. However, since this study explored only two linguistic targets in slightly similar linguistic areas (e.g., morphology and morpho-syntax), the results cannot be generalized as to whether the learning effect depends on being area-based or item-based. Jeon (2004) suggests that learning effect is based on the individual linguistic targets rather than language area. Thus comparing two linguistic targets in the same area (e.g., past tense vs. comparative –er in the morphology area, relative clauses vs. question formations in the morpho-syntax area) would show more defined results for a learning effect. It may be found that the learning effect may still be different within the same area. More empirical research is needed to generalize results in this area.

6.6 Future Research

Although many studies over the past two decades have investigated the effectiveness of interaction, studies on NNS-NNS repair negotiation have been few in number. This study attempts to add to the limited research by investigating language development through repair negotiation between L2 learners, NNS-NNS repair negotiation. It can be extended into future research areas, and in so doing overcome the limitations of this study.

First, Experiment 1 examined instances of repair negotiation from a variety of ESL

learner factors, from high beginning to advanced levels, with unbalanced numbers of participants in each level. The frequency of repair negotiation slightly varied from learners' proficiency levels. This suggests that some groups could benefit more than others. Future research could address this idea and examine the relationship between learners' ability to initiate repair and learners' proficiency level. Also, this study indicates that the information requester in a one-way information gap task may benefit more than the information holder from repair negotiation. It would be desirable to test who benefits more in a one-way information gap task by a pre- and post-test design: one learner more than the other or both learners equally.

Second, Experiment 1 and 2 did not consider factors that could affect repair negotiation such as familiarity, gender, age, and motivation. For example, it is predicted that a dyadic interaction with more familiarity may lead to more repair negotiation. Also, gender may influence the amount and quality of repair negotiation. A gender effect could be examined in an experimental setting by comparing the amount and quality of repair negotiation between same-gender groups and between mixed-gender groups. Further research is needed to examine the relationship between those factors and instances of repair negotiation.

Third, since Experiment 1 and 2 considered the repair initiation part produced by the learners, further research could also examine the effect of repair completion. Learners' repair completion, as an immediate uptake, has been assumed to lead to language development; it provides an opportunity for learners to "proceduralize and automatize the knowledge of the target form" as a form of modified output (Nassaji 2011, p.19; see Lyster and Ranta 1997). Investigating the relationship between the extent of modified output and language development will provide an insight into the role of repair completion. Specifically, using pre-test and post-test research design, the relationship between the extent of successfully modified output and language development on certain linguistic targets will provide of a clear picture of language learning.

Fourth, Experiment 2 examined instances of repair negotiation from ESL learners with

same proficiency levels. Even though the dyads with same proficiency levels involved repair negotiation as a speaker and interlocutor more equally, they sometimes had difficulty in understanding each other and did not know how to repair their utterances. Less effect of relative clauses in this study suggests that learners may need some help from more competent interlocutors. Thus, future research could address this idea and examine the development with regard to dyads with same proficiency levels and different proficiency levels.

Finally, a longer treatment time in Experiment 2 would allow for a better understanding of the relationship between L2 learners' repair negotiation and second language learning. Since this study involved the morpho-syntactic development, which is assumed to have more complex in learning than lexical development, a longer treatment time may have led to a better effect of morpho-syntactic learning.

APPENDIX A

BACKGROUND QUESTIONNAIRE (Adapted from Takahashi 2007)

Background Questionnaire

Part 1: General Information

1. Name _____

2. Sex (circle one)   male   /   female

3. Age ____

4. Contact phone number or email address _____

5. Where were you born?

   City _____Country _____

6. What is your native language? _____

7. What is the highest level of education you have completed? (choose one)

elementary school, high school,   some college,   BA/ BS,   Masters,   PhD

Part 2. Prior Foreign Language Studies

1. Have you ever studied any foreign language other than English?

       Yes   No

2. If yes, please give the following information:

       Language 1: _____

       How long have you studied the language?

       For: ___   years   ___   months

       Language 2:

       How long have you studied the language?

       For: ___   years   ___   months

Part 3. Study of English

1. How long have you lived in the US?

2. Did you study English before coming to the University of Texas at Arlington?

   Yes   No

3. If yes, please provide the following information:

   How long have you studied the language? _____

   For: (   )   years   (   )   months

   Where?

4. Before you came to the United States, did you talk with any English speakers?

   If yes, please provide the following information:

   Under what situations?

   For how long?

   How many hours per week?

5. At what age did you start to learn English?

6. How many hours per week would you say you interact with other non-native speakers in English now?

   Under what situations?

7. Why do you want to study English?

8. What do you want to do with English?

Part 4. English proficiency

1. Please rank the skills according to how proficient you think you are:

	1 Least proficient	2	3	4	5 Most proficient
speaking					
listening					
reading					
writing					

2. Please rank the skills according to how important you think:

	1 Least important	2	3	4	5 Most important
speaking					
listening					
reading					
writing					

3. Please check your levels:

Speaking (check one)

(   )   I cannot convey anything in English.

(   )   I can convey daily greetings.

(   )   I am capable of handling uncomplicated daily expressions.

(   )   I can express and support my opinions about non-technical topics.

(   )   I can speak almost everything including technical topics in English.

Reading (check one)

(   )   I cannot read English script.

(   )   I can read a short authentic text and get the gist using a dictionary (e.g., newspaper

        article, magazine)

(   )   I can read a newspaper article and understand it fully, possibly with use of a dictionary.

(   )   I can read a newspaper without using a dictionary.

Listening (check one)

(   )   I cannot understand anything in spoken English.

(   )   I can understand daily greetings and survival phrases.

(   )   I can understand daily conversation of an uncomplicated nature.

(   )   I can understand more than half of TV news reports and dramas.

(   )   I can understand almost everything I hear in English.

Writing (check one)

(   )   I cannot write in English.

(   )   I can write a short memo to a teacher.

(   )   I can write a one page letter to an American friend.

(   )   I can write a short essay on non-technical matter.

(   )   I can write an academic paper in English.

You are at the last stage of your participation in our study. Please read the questions carefully and write your answers as clearly as possible.

1.   While you were participating in the activities, did you find anything you want to tell me about the project? For example, did you figure out what the study is about?

2.   Now, you are all done! Thank you very much for your cooperation.

APPENDIX B

TYPES OF TASKS FOR EXPERIMENT

Appendix B-1: One-way information gap task (Adopted from *Talk-A-Tivities* by Richard Yorkey, 2002)
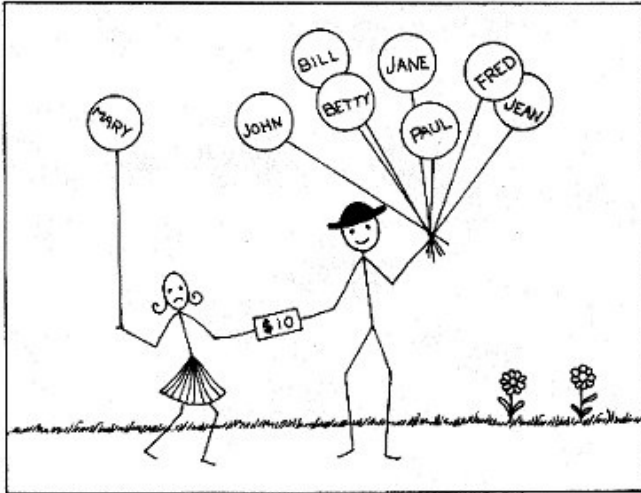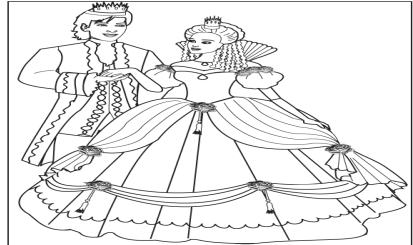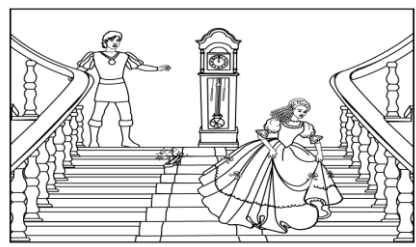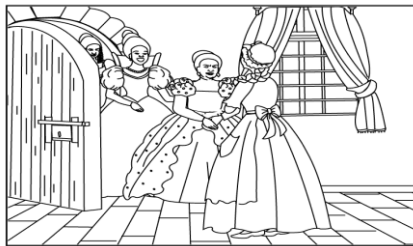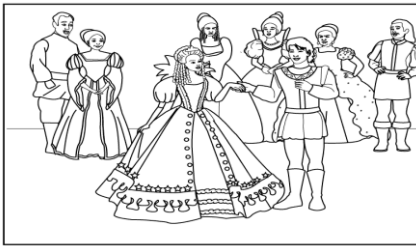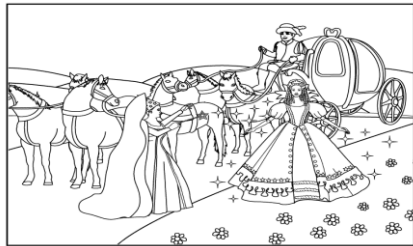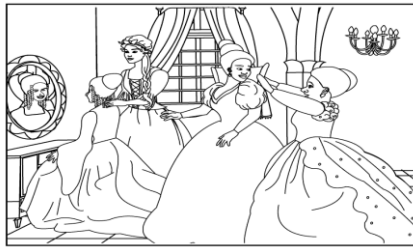

Appendix B-2: Jigsaw task (Adopted from *Talk-A-Tivities* by Richard Yorkey, 2002)

Appendix B-3: Decision-making task

(adopted from http://www.kidspages.com/folders/colpages/Cinderella/index.htm)

APPENDIX C

TYPES OF TASKS FOR EXPERIMENT

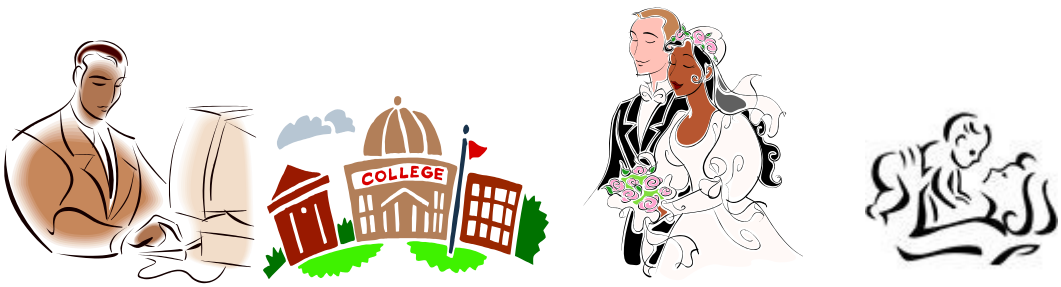Appendix C-1: One-way information gap task for past tense

Scenario: Your school will give awards to two people. The two people are Bill Smith and Bev Snow. You and your partner are introducing the two award winners at the awards party/ceremony. You and your partner are asked to make eight-sentence speech about the life of Bill Smith and eight-sentence speech about the life of Bev Snow.

Directions for one-way information gap task:
One of you will have twelve pictures that show the life history of the two people (6 pictures for Bill Smith and 6 pictures for Bev Snow). One of you will look at those pictures with key words and use any 4 of the 6 pictures to introduce Bill Smith to your partner then use any 4 of the 6 pictures to introduce Bev Snow. Use the picture and the keywords with the picture to explain what happened at that time in the person's life. Follow the number order as you give your speech. Tell 2 sentences about each of the 4 pictures you choose. Make sure that your story flows and the different parts are connected. You can add other ideas using your imagination.

As you introduce the people your partner will fill in a timeline for each person based on your story. Be as creative as possible.

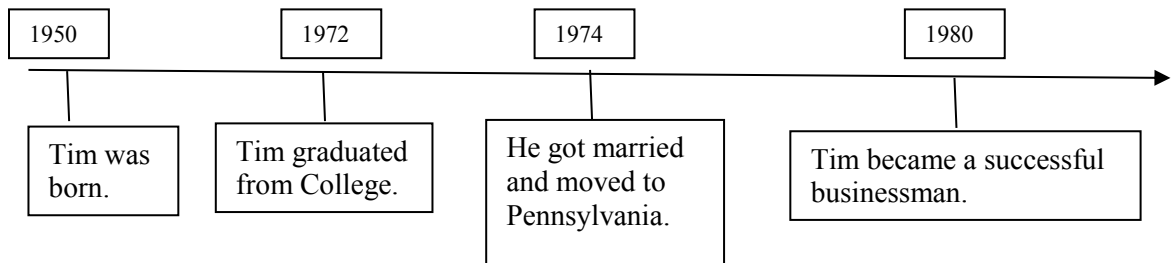EXAMPLE: (These 4 pictures out of 6 were chosen.)

| 1980 businessman, success manager, company | 1972 enter, college, enjoy, baseball graduate | 1974 marry, happy life, first | 1950 born, Chicago, family, baby |

Timeline for Tim Brown

| 1950 | 1972 | 1974 | 1980 |

| Tim was born. | Tim graduated from College. | He got married and moved to Pennsylvania. | Tim became a successful businessman. |

Example introduction speeches:

<u>I would like to introduce Tim Brown.</u>
Tim was born in 1950 in Chicago. In 1970 Tim went to college in Texas. Later Tim met a woman and they dated for 2 years and married in 1974. Tim worked at many places and joined our company in 1980.

Appendix C-2: Decision-making gap task for past tense

Scenario: Your school will give awards to two people. The two people are Bill Smith and Bev Snow. You and your partner are introducing the two award winners at the awards party/ceremony. You and your partner are asked to make eight-sentence speech about the life of Bill Smith and eight-sentence speech about the life of Bev Snow.

Directions for decision-making task: You and your partner will have some pictures that show the life history of the two people (6 pictures for Bill Smith and 6 pictures for Bev Snow). Following the number order, <u>make a timeline</u> about each of the two candidates' lives.

Use the timeline information to discuss your presentation speech about the life of each person. Together choose 4 pictures for each person and tell 2 sentences about each of the 4 pictures you choose. Use each picture and the keywords to explain what happened at that time in the person's life. Working together, you should write a speech that flows and make sure the different parts are connected. You can add other ideas using your imagination.

Together fill in a timeline based on what you decided together. Create the two introduction speeches related to 4 of the 6 pictures for each person. Be as creative as possible.

Task for Past Tense (One-way information gap and decision-making task)

Bill Smith (Choose 4 of the 6 life events below and make a speech about Bill Smith as your partner makes a Time Line based on your speech).

1950 born, New York family, baby, house, live, fun, play

1.

1969, Graduate high school
Student, smart, friends, books, sports, make, good at science, read, write, play

2.

3.

1970, college, electrical engineering, enjoy, happy time, sports, like, get, attend, major, study, part time job, graduation in 1973

4.

1980 a first job, salesman, language, train, airplane, around the meet, world, travel, work, customers, office, speak

5.

1990 marry, children, house, car, live, buy

6.

2000 accident, sick, hospital, family, have, get, recover, job, sad, feel, healthy

Bev Snow (Choose 4 of the 6 life events below and make a speech about Bill Smith as your partner makes a Time Line based on your speech).

1943 born, Los Angeles, family, sister and brother, fun, play

1.

1982, songs, music, famous, ballad, make, write, composer, singers, work

2.

1985, car, cruise, lottery, win, buy, go, take, get, trip, camping,

3.

1990, job, business, shop, change, buy, own, become, rich, work

4.

5.

1993, sick, operation, hospital, cancer, book, bed. never give up, hope, recover, read, lie

6.

1995, award, a music book, professor, music, money, get, publish, donate, nice, teach,

Appendix C-3: One-way information gap task for relative clause

Direction for one-way information gap task: Here is the picture of a park scene where different people are doing different things. Your picture and your partner's picture are similar but not the same. One of you will have a picture with a circle and one of you will have a picture without a circle. If you have a picture with a circle, you should describe to your partner the part of the picture that is inside the circle. Use the keywords given that relate to the picture to describe the picture inside the circle. Tell your partner a sentence starting with a circle. Your partner should draw a circle based on what is heard. Please ask your partner questions about where the circles are drawn. When you describe what is inside the circle do not use coordinating conjunctions such as "and", "but", and "so." Do not use a passive sentence. Please use the following format.

Use any of the following formats:

Draw a circle around the……………….**who**……………

Draw a circle around the ………………. **which** …………

Draw a circle around the ………………. **whom** …………

Draw a circle around the ………………. **in which**……….

Draw a circle around the ………………. **that**……….

Appendix C-4: Decision-making gap task for relative clause

Direction for decision-making task: Here is the picture of a park scene where different people are doing different things. In this task, you and your partner have a same picture. You and your partner must discuss what is inside the circles on your picture. Please ask each other questions about where the circles are drawn and practice saying the different locations of the circles. Use the keywords given that relate to the picture to describe the part of the picture inside the circle. Discuss with your partner a sentence starting with a circle. When you describe what is inside the circle do not use coordinating conjunctions such as "and", "but", and "so." Do not use a passive sentence. Please use the following format.

Use any of the following formats:

There is/are…………………**who**……………

There is/are ………………. **which** …………

There is/are ………………. **whom** …………

There is/are ………………. **in which**……….

There is/are ………………. **that**……….

Example

(a man, hold, a pencil)
Tell your partner: There is **a man who is holding a pencil.**

(a man, hold, a dog)
Tell your partner: There is **a dog which the man is holding.**

Task for Relative Clause (One-way information gap and decision-making task)

A woman who….

A food stand in which….

An iron bar on (in) which…

A doll which…

A girl who…

Sample Task for relative clause

A bench (on) which..

A bike which..

A man who..

A baby who a...

A sandbox (at) which…

Sample Task for relative clause

A boy who…

A baby who a…

A girl who…

A ball which..

A newspaper which…

APPENDIX D

ORAL AND WRITTEN TESTS FOR EXPERIMENT 2

Sample of Oral Test

Choose a time in your life when you <u>attended school in your own country</u>. For example, high school, or college. Think about what happened at that time.

I am going to ask you some questions. Please answer in complete sentences, like if I ask *what did you eat* then answer *I ate pizza with extra pepperoni*, don't just say *pizza with extra pepperoni.* Please speak clearly and loudly so that I can hear you on the recording.

Let's begin now.

- Did you **work** hard on your studies?
- Where did you **go** to school?
- What did you **study**?
- When did you **graduate**?
- Did you **live** near school?
- Did you **enjoy** going to school?
- What kind of school supplies did you **buy**?
- Did you **write** many stories?
- What sports did you **play**?
- What subject did you **like** best?

Sample of Written Test (in DMDX)

<fd 108> <cr> <d 60> <nfb> <s 108> <vm 1366,768,32,60> <t 10000>

$0" Press the SPACEBAR to proceed the next screen.";
0 "You will be given a sentence on the screen.", <ln 1> "Read each sentence and decide if the sentence sounds like good or bad English.";
0 "Press the Left Shift key if the sentence sounds bad.", <ln 1> "Press the Right Shift key if the sentence sounds good.";
0 "Respond as quickly as you can,", <ln 1> "without thinking too much about the sentence.";
0 "The following items are for practice.";

-251 *"John meet the girl.", <ln 2> "BAD   GOOD" c;
-252 *"The boy goes to school yesterday.", <ln 2> "BAD   GOOD" c;
-253 *"The computer are strange.", <ln 2> "BAD   GOOD" c;
+254 *"I go to school everyday.", <ln 2> "BAD   GOOD" c;
-255 *"Tom eat too much last night.", <ln 2> "BAD   GOOD" c;
+256 *"Jessica works from 7.a.m to 10p.m everyday.", <ln 2> "BAD   GOOD" c;

0 "Now, this is the end of practice.", <ln 1> "See the administrator if you don't understand.", <ln 2> "Press spacebar to begin experiment."; $

+1 *"This is the man that the woman kissed.", <ln 2> "BAD   GOOD" c;
+2 *"We will stay at a hotel that my friend recommended.", <ln 2> "BAD   GOOD" c;
+3 *"This is the man that Barbara visited in Scotland.", <ln 2> "BAD   GOOD" c;
+4 *"That is the museum that I like very much.", <ln 2> "BAD   GOOD" c;
+5 *"Jane is a person who(m) everybody likes. ",<ln 2> "BAD   GOOD" c;
+6 *"Cheese is a food which mice like to eat.", <ln 2> "BAD   GOOD" c;
-7 *"I got an invitation from the woman who(m) I met her at the conference.", <ln 2> "BAD   GOOD" c;
-8 *"This is the book which Brandon likes to read it. ", <ln 2> "BAD   GOOD" c;
-9 *"Jessica is the woman John met her at the party. ", <ln 2> "BAD   GOOD" c;
-10 *"We cannot accept the offer you made it. ", <ln 2> "BAD   GOOD" c;
-11 *"This is the book Susan ordered it last week. ", <ln 2> "BAD   GOOD" c;
-12 *"Debbie is the girl I'd like to you to meet her. ", <ln 2> "BAD   GOOD" c;
+13 *"This is the man who kissed the woman.", <ln 2> "BAD   GOOD" c;
+14 *"That is a museum which is in the middle of the town. ", <ln 2> "BAD   GOOD" c;
-15 *"This is the man that he lives in Scotland.", <ln 2> "BAD   GOOD" c;
-16 *"Potato chips are a food that it has a lot of calories.", <ln 2> "BAD   GOOD" c;
+17 *"That is a museum which is in the middle of the town.", <ln 2> "BAD   GOOD" c;
+18 *"Jane is a person who speaks Spanish fluently. ", <ln 2> "BAD   GOOD" c;
-19 *"I cannot remember the hotel is very close to the Empire State Building.", <ln 2> "BAD   GOOD" c;
-20 *"I don't like the person lose their temper easily.", <ln 2> "BAD   GOOD" c;
+21 *"I ate an apple which was on the table.", <ln 2> "BAD   GOOD" c;
+22 *"An actress is a woman who plays in films or plays.", <ln 2> "BAD   GOOD" c;
-23 *"My mobile phone is something it is important to me.", <ln 2> "BAD   GOOD" c;
-24 *"Anthony is a friend of mine he lives in Boston.", <ln 2> "BAD   GOOD" c;
+25 *"This is the boy who(m) the girl is going out with.", <ln 2> "BAD   GOOD" c;
+26 *"This is the office which Tom works at.", <ln 2> "BAD   GOOD" c;
-27 *"I cannot remember the hotel that we stayed at it.", <ln 2> "BAD   GOOD" c;

$0 "Let's take a short break.", <ln 2> "Press the spacebar when you are ready to continue.";$

-28 *"John has two children he has to take care of them.", <ln 2> "BAD   GOOD" c;
+29 *"This is the plan I talked about yesterday.", <ln 2> "BAD   GOOD" c;
+30 *"She is the girl I was talking to at the party.", <ln 2> "BAD   GOOD" c;
-31 *"This is the apartment which Tom lives in it.", <ln 2> "BAD   GOOD" c;
-32 *"This is the woman who(m) I have been thinking of it.", <ln 2> "BAD   GOOD" c;
+33 *"This is the book that we are looking for.", <ln 2> "BAD   GOOD" c;
+34 *"She was Michelle he was talking to at the conference.", <ln 2> "BAD   GOOD" c;
-35 *"This is the key we are looking for it.", <ln 2> "BAD   GOOD" c;
-36 *"I know the person Mary is speaking with him.", <ln 2> "BAD   GOOD" c;
+37 *"Sean donated some of his books to a church last year.", <ln 2> "BAD   GOOD" c;
+38 *"He owned a bookstore two years ago.", <ln 2> "BAD   GOOD" c;
+39 *" They attended the Yankees baseball game yesterday.", <ln 2> "BAD   GOOD" c;
+40 *"I played baseball with my friends last weekend.", <ln 2> "BAD   GOOD" c;
+41 *"Sharon liked to read novels when she was young.", <ln 2> "BAD   GOOD" c;
+42 *"He lived with his family in Arlington three years ago.", <ln 2> "BAD   GOOD" c;
-43 *"I watch TV for three hours last night.", <ln 2> "BAD   GOOD" c;
-44 *"Sam study hard when he was a teenager.", <ln 2> "BAD   GOOD" c;
-45 *"Katie invite three of her friends to a party last Saturday.", <ln 2> "BAD   GOOD" c;
-46 *"Susie graduate from a university in Arlington last year.", <ln 2> "BAD   GOOD" c;
-47 *"Sharon publish a new novel a month ago.", <ln 2> "BAD   GOOD" c;
-48 *"James travel in Europe on trains in last summer.", <ln 2> "BAD   GOOD" c;
+49 *"John went to the store last night.", <ln 2> "BAD   GOOD" c;
+50 *"He wrote songs for Brittany Spears last year.", <ln 2> "BAD   GOOD" c;
-51 *"Joe eat a pizza at a fancy restaurant last weekend.", <ln 2> "BAD   GOOD" c;
-52 *"Martin meet a man at the library a few days ago.", <ln 2> "BAD   GOOD" c;
+53 *"I bought some apples at Wal-Mart last weekend.", <ln 2> "BAD   GOOD" c;
+54 *"He wrote a letter to me yesterday.", <ln 2> "BAD   GOOD" c;

$0 "Let's take a short break.", <ln 2> "Press the spacebar when you are ready to continue.";$

-55 *"He sanged songs for an hour last night.", <ln 2> "BAD   GOOD" c;
-56 *"Tom felted sick after he ate ice cream last night.", <ln 2> "BAD   GOOD" c;
+57 *"John bought a new car last summer.", <ln 2> "BAD   GOOD" c;
+58 *"Karen got a job as a waitress when she was eighteen.", <ln 2> "BAD   GOOD" c;
-59 *"Debbie taked a psychology class from Dr. Smith last fall.", <ln 2> "BAD   GOOD" c;
-60 *"Laura catched the pickpocket at the mall last night.", <ln 2> "BAD   GOOD" c;
+61 *"She did not donate any money last Christmas.", <ln 2> "BAD   GOOD" c;
+62 *"Brian did not buy any bananas at the grocery store last night.", <ln 2> "BAD   GOOD" c;
-63 *"He does not watch the Texas Rangers game for four hours last night.", <ln 2> "BAD
GOOD" c;
-64 *"Tom does not meet his mother at the grocery store last Sunday.", <ln 2> "BAD   GOOD"
c;
+65 *"Michael did not receive a good grade on his homework last time.", <ln 2> "BAD
GOOD" c;
+66 *"Janet did not tell me the answer of the question last night.", <ln 2> "BAD   GOOD" c;
-67 *"Selling products online didn't seemed like a good idea in the 1990s.", <ln 2> "BAD
GOOD" c;
-68 *"I received his invitation but could not accepted.", <ln 2> "BAD   GOOD" c;
+69 *"He did not attend a university when he was 19.", <ln 2> "BAD   GOOD" c;

+70 *"The pilot did not leave the plane until every passenger was off.", <ln 2> "BAD   GOOD" c;
-71 *"He does not visited his family because he was busy with his work last Christmas.", <ln 2> "BAD   GOOD" c;
-72 *"I do not kept a diary when I was an elementary school student.", <ln 2> "BAD   GOOD" c;
+73 *"I write a letter to my brother every week.", <ln 2> "BAD   GOOD" c;
+74 *"John says that a computer is more useful than a telephone.", <ln 2> "BAD   GOOD" c;
+75 *"I'm going to go home in June.", <ln 2> "BAD   GOOD" c;
+76 *"Maybe we will stop for ice cream.", <ln 2> "BAD   GOOD" c;
+77 *"If I find her address, I'll send her an invitation.", <ln 2> "BAD   GOOD" c;
+78 *"I usually take a bath before eating dinner.", <ln 2> "BAD   GOOD" c;
+79 *" It has been good weather for five days.", <ln 2> "BAD   GOOD" c;
+80 *"They are going to meet next month.", <ln 2> "BAD   GOOD" c;
+81 *"I am going to see him in two weeks.", <ln 2> "BAD   GOOD" c;

$0 "Let's take a short break.", <ln 2> "Press the spacebar when you are ready to continue.";$

+82 *"My father is about as strong as your father.", <ln 2> "BAD   GOOD" c;
+83 *"I have studied English for three years.", <ln 2> "BAD   GOOD" c;
+84 *"He goes to school five days a week.", <ln 2> "BAD   GOOD" c;
+85 *"My mother always tells me to study hard.", <ln 2> "BAD   GOOD" c;
+86 *"He never asks questions in class because he is shy.", <ln 2> "BAD   GOOD" c;
+87 *"It costs a lot to study abroad.", <ln 2> "BAD   GOOD" c;
+88 *"They want to go away for a weekend.", <ln 2> "BAD   GOOD" c;
+89 *"I will have read this book by this time tomorrow.", <ln 2> "BAD   GOOD" c;
+90 *"If I study, I will do well on the test.", <ln 2> "BAD   GOOD" c;
-91 *"I can to bring along some packages of snacks.", <ln 2> "BAD   GOOD" c;
-92 *"If you don't hurry up now, you are late for school.", <ln 2> "BAD   GOOD" c;
-93 *"They are not like water sports.", <ln 2> "BAD   GOOD" c;
-94 *"Charles met him friends at the club last night.", <ln 2> "BAD   GOOD" c;
-95 *"I am learning English for five years now.", <ln 2> "BAD   GOOD" c;
-96 *"Jenny is afraid of go by plane.", <ln 2> "BAD   GOOD" c;
-97 *"My mobile phone is moderner than yours.", <ln 2> "BAD   GOOD" c;
-98 *"The house was build in 1840.", <ln 2> "BAD   GOOD" c;
-99 *"I was looking for my hat, but I couldn't find it everywhere.", <ln 2> "BAD   GOOD" c;
-100 *"I used to getting up early in the morning.", <ln 2> "BAD   GOOD" c;
-101 *"My parents had their room painting.", <ln 2> "BAD   GOOD" c;
-102 *"You should ask her polite.", <ln 2> "BAD   GOOD" c;
-103 *"In our society people spend more time to work.", <ln 2> "BAD   GOOD" c;
-104 *"His brother are writing a test at the moment.", <ln 2> "BAD   GOOD" c;
-105 *"There are best hotels in the desert.", <ln 2> "BAD   GOOD" c;
-106 *"Anna told me a very interested story.", <ln 2> "BAD   GOOD" c;
-107 *"Right now, my mother cooks dinner in the kitchen.", <ln 2> "BAD   GOOD" c;
-108 *"I slept when the phone rang.", <ln 2> "BAD   GOOD" c;

$0 "The end. Thank you for your participation.";$

APPENDIX E

INFORMED CONSENT FORM FOR EXPERIMENT 2

INFORMED CONSENT

PRINCIPAL INVESTIGATOR NAME:
Choi, Yujeong

TITLE OF PROJECT:
Repair Negotiation of English L2 Learning

INTRODUCTION
You are being asked to participate in a research study. Your participation is voluntary. Please ask questions if there is anything you do not understand.

PURPOSE
The purpose of this study is to examine and compare the effects of different types of interactions between second language (L2) learners. In order to participate in the study you must be 18 years of age or older. In addition, you must self-identify as a learner of English as a second language (ESL).

DURATION
The study involves two experiments. In Experiment 1 your participation will take a maximum of 1 hour including three paired communicative tasks, a background questionnaire, and an initial questionnaire. The paired communicative tasks emphasize learning through interaction in a pair. In Experiment 2 your participation will take a maximum of 2 hours including two paired activities, a follow-up questionnaire, and a delayed questionnaire since it requires two sessions. The delayed questionnaire refers to a questionnaire given two weeks after you complete the communicative tasks.

You will be one of approximately 100 people who will take part in this research, which is being conducted in the Speech Sounds Lab or Psycholinguistics Lab of the UTA Linguistics Dept.

PROCEDURES
The procedures, which will involve you as a research subject, include four questionnaires (a background questionnaire, a questionnaire 1, a follow-up questionnaire, and a delayed questionnaire). Each questionnaire except the background questionnaire is composed of oral questions and written questions.

In Experiment 1 you will be asked to complete a background questionnaire, questionnaire 1 and undertake three types of communicative tasks with your partner. You will be randomly paired with your partner by the researcher. You will be paired with a partner whose proficiency level is similar to yours. You should orally interact with your partner to complete the tasks. Your interaction will be audio-recorded.

In Experiment 2 you and your partner will complete two communicative activities which are the same types of tasks conducted in Experiment 1. Then you will complete two questionnaires individually. If you participate only in Experiment 2, you will also be asked to fill out a background questionnaire and questionnaire 1.

The following are the procedures in Experiment 2.

(1) You will be asked to sit in a booth with your partner and complete two activities.
(2) You will be asked to fill out a follow-up questionnaire.
(3) You will be asked to return to the lab two weeks later to fill out a delayed questionnaire.

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POSSIBLE BENEFITS

There are no direct or significant benefits to you as a result of your participation other than the possibility of improving your English. However, you may develop more knowledge about English forms and rules by the end of the experiment.

COMPENSATION:

You will receive $10 cash or gift card if you participate in Experiment 1 or $20 cash or $20 gift card if you participate in Experiment 2, composed of two sessions. You can only participate in one of the experiments. The cash or the gift card will be given at the end of each meeting after you fill out the required UTA W-9 form. If you decide to withdraw at anytime during your participation, you will still get cash or gift card.

POSSIBLE RISKS/DISCOMFORTS

There are no foreseeable risks or discomforts associated with your participation in this study.

ALTERNATIVE PROCEDURES/TREATMENTS

If you decide not to participate in this study, you are free to leave at any time.

WITHDRAWAL FROM THE STUDY

You may discontinue participation at any time without penalty or loss of benefits, to which you are otherwise entitled.

NUMBER OF PARTICIPANTS

A maximum of 100 participants are expected to enroll in this study.

CONFIDENTIALITY

All interactions will be maintained with identification numbers. The identification numbers associated with recorded interactions will be kept during the data collection phase for tracking purposes only. Only the researcher will have access to the data during data collection. The data will be kept in the Speech Sounds Lab (Trimble Hall 301) or Psycholinguistics lab (Hammond Hall 130). The data collected will be maintained for future purposes. All data including the consent forms will be maintained for a minimum of 3 years on the UTA campus.

Every attempt will be made to see that your study results are kept confidential. The results of this study may be published and/or presented at meetings without naming you as a subject. Although your rights and privacy will be maintained, the Secretary of the Department of Health and Human Services, the UTA IRB, the FDA (if applicable), and personnel particular to this research (individual or department) have access to the study records. Your (e.g., student, medical) records will be kept completely confidential according to current legal requirements. They will not be revealed unless required by law, or as noted above.

If in the unlikely event it becomes necessary for the Institutional Review Board to review your research records, then The University of Texas at Arlington will protect the confidentiality of those records to the extent permitted by law. Your research records will not be released without your consent unless required by law or a court order. The data resulting from your participation may be made available to other researchers in the future for research purposes not detailed within this consent form. In these cases, the data will contain no identifying information that could associate you with it, or with your participation in any study.

CONTACT FOR QUESTIONS:

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Questions about this research or your rights as a research subject may be directed to Yujeong Choi at (817)-807-7677. You may contact the chairperson of the UT Arlington Institutional Review Board at (817)-272-3723 in the event of a research-related injury to the subject.

CONSENT:
Signatures:
As a representative of this study, I have explained the purpose, the procedures, the benefits, and the risks that are involved in this research study:

_____

Signature and printed name of principal investigator or person obtaining consent   Date

By signing below, you confirm that you have read or had this document read to you. You have been informed about this study's purpose, procedures, possible benefits and risks, and you have received a copy of this form. You have been given the opportunity to ask questions before you sign, and you have been told that you can ask other questions at any time

You voluntarily agree to participate in this study. By signing this form, you are not waiving any of your legal rights. Refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled, and you may discontinue participation at any time without penalty or loss of benefits, to which you are otherwise entitled.

_____

SIGNATURE OF VOLUNTEER   DATE

By initialing below, you confirm that the investigator may use your audio and video recordings in the following ways:

	Audio Recordings	Video Recordings
Played in classrooms to students		
Played at conference presentations to an academic audience		
Played to participants in future experiments		
Used in analysis of language		
Used in the development of teaching materials		
Made available online to researchers & students		
Made available online to anyone interested		

By signing below, you confirm that your recordings may be used in any of the ways which you have initialed.

_____

SIGNATURE OF VOLUNTEER   DATE

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APPENDIX F

TRANSCRIPTION CONVENTIONS

The transcription conventions developed by Sacks et al. (1974) were used in this dissertation.

Notation	Meaning
(1.7)	Single parentheses enclosing numbers indicate a pause in conversation. The number show pause duration in tenths of seconds.
(.)	Single parentheses with just a period between indicate a pause shorter than tenths of a second
//	//indicates overlapping utterances
=	Equal signs at the end of one utterance and the beginning of the next indicate closely contiguous utterances that do not overlap (latching)
u::m	Colons indicate the stretching of the sound that each colon follows. More colons indicate longer stretching.
↑	An arrow just before a sound indicates a rise in pitch. A downward arrow indicates a pitch fall.
?	A question mark indicates rising pitch at word or phrase ending, not necessarily a grammatical question.
.	A period indicates sliding or falling pitch at the end of a word or phrase.
,	A comma indicates a continuing intonation.
hhh	h's indicate audible outbreaths, sighing, or unvoiced laughter. Duration is one-tenth of a second per "h".
-hh	A superscripted period followed by h's indicates audible in breaths.
➔	Arrows in the margin point to the lines of transcript relevant to the point being made in the text.

REFERENCES

Adams, R. (2004). *Learner-learner interactions: Implications for second language acquisition*.

Ph.D. dissertation. Georgetown University, Washington D.C.

Adams, R. (2007). Do second language learners benefit from interacting with each other? In A.

Mackey (Ed.), *Conversational interaction in second language acquisition: A collection of*

empirical studies (pp. 29-52). New York: Oxford University Press.

Adams, R., Nuevo, A., M, & Egi, T. (2011). Explicit and implicit feedback, modified output, and

SLA: Does explicit and implicit feedback promote learning and learner-learner

interactions? *Modern Language Journal*, 95, 42-63.

Ali Muftah, M.Y., & Eng, W.B. (2011). The Acquisition of English be auxiliary and thematic verb

constructions by adult Arab ESL learners, *International Journal of English*

*Linguistics,*1(2), 91-105.

Bada, E. (2010). Repetitions as vocalized fillers and self-repairs in English and French

Interlanguages, *Journal of Pragmatics*, 42, 1680–1688.

Buckwalter, P. (2001). Repair sequences in Spanish L2 Dyadic discourse: A descriptive study.

Modern Language Journal, 85 (3), 380-397.

Celce-Murcia, M. & Larsen-Freeman, D. (1999). *The grammar book: An ESL/EFL teacher's*

course, Boston: Heinle & Heinle.

Collins, L., Trofimovich, P., White, J., Cardoso, W., & Horst, M. (2009). Some input on the

easy/difficult grammar question: An empirical study. The *Modern Language Journal*, 93,

336-353.

Doughty, C.,& Varela, E. (1998). Communicative focus on form. In C. Doughty, J. Williams

(Eds.)*, Focus on form in classroom second language acquisition* (pp. 114-138),

Cambridge, UK: Cambridge University Press.

DeKeyser, R. (1998). Beyond focus on form: Cognitive perspectives on learning and practicing second language grammar . In C. Doughty & J. Williams (Eds.), *Focus on form in classroom second language acquisition* (pp. 42 – 63). New York: Cambridge University Press .

DeKeyser, R. (2005). What makes learning second-language grammar difficult? A review of issues. *Language Learning*, 55, 1-25.

Drew, P. (1997). 'Open' class repair initiators in response to sequential sources of troubles in conversation. *Journal of Pragmatics*, 28, 69-101.

Dulay, H. C., & Burt, M. K. (1974). Natural sequences in child second language acquisition. *Language Learning*, 24, 37-53.

Dulay, H., Burt, M., & Krashen, S. (1982). *Language Two*. New York: Oxford University Press.

Egi, T. (2004). *Recast, perceptions and L2 development*. Ph.D. dissertation. Georgetown University, Washington D.C.

Ellis, R. (1994). *The study of second language acquisition*, Oxford: Oxford University Press.

Ellis, R. (2003). *Task-based language learning and teaching*. New York: Oxford University Press.

Ellis, R. (2005). Measuring implicit and explicit knowledge of second language: A psychometric study. *Studies in Second Language Acquisition*, 27, 141 – 172.

Ellis, R. (2007). The differential effects of corrective feedback on two grammatical structures. In A. Mackey (Ed.), *Conversational interaction in second language acquisition: A collection of empirical studies* (pp. 339-360). New York: Oxford University Press.

Ellis, R., Basturkmen, H., & Loewen, S. (2001). Preemptive focus on form in the ESL classroom. *TESOL Quarterly*, 35, 407–432.

Ellis, R. & He, X. (1999). The role of modified input and output in the incidental acquisition of word meanings. *Studies in Second Language Acquisition*, 21, 285-301.

Ellis, R., Loewen, S., & Erlam, R. (2006). Implicit and explicit corrective feedback and the acquisition of L2 grammar. *Studies in Second Language Acquisition*, 28, 339–369.

Ellis, R., Tanaka, Y., & Yamazaki, A. (1994). Classroom interaction, comprehension and the acquisition of L2 word meanings. *Language Learning*, 44, 449-491.

Foster, P. (1998). A classroom perspective on the negotiation of meaning. *Applied Linguistics*, 19, 1–23.

Foster, P. & Ohta, A. (2005), Negotiation for meaning and peer assistance in second language classroom. *Applied Linguistics*, 26 (3), 402-430.

Fox, B. and Jasperson, R. (1995). A syntactic exploration of repair in conversation. In P. Davis (Ed.), *Descriptive and theoretical modes in the alternative linguistics* (pp *77-134)*. Amsterdam: John Benjamins.

Fox, B., Maschler, Y., & Uhmann, S. (2010). A cross-linguistic study of self-repair: Evidence from English, German, and Hebrew, *Journal of Pragmatics*, 42, 2487–2505.

Garcia Mayo, M. P., & Pica, T. (2000). Interaction among proficient learners: Are input, feedback, and output needs addressed in a foreign language context? *Studia Linguistica: A   Journal of General Linguistics*, 54(2), 272-279.

Gass, S. (1979). Language transfer and universal grammatical relations. *Language Learning*, 29(2), 327-344.

Gass, S. (1980). An investigation of syntactic transfer in adult second language learners. In R. Scarcella & S. Krashen (Eds.), *Research in second language acquisition: Selected papers from the Los Angeles Second Language Acquisition Research Forum* (pp. 132-141). Rowley, MA: Newbury House.

Gass, S, & Ard, J. (1984). Second language acquisition and the ontology of language universals. In W. Rutherford (Ed.), *Language universals and second language acquisition* (pp. 33-67). Amsterdam: John Benjamins.

Gass, S, M., Mackey, A., & Ross-Feldman, L. (2005). Task-based interactions in classroom and laboratory settings, *Language learning*, 55(4), 575-611.

Goldschneider, J. M., & DeKeyser, R. M. (2001). Explaining the "natural order of L2 morpheme acquisition" in English: A meta-analysis of multiple determinants. *Language Learning*, 51, 1-50.

Hall, J. K. (2007). Redressing the roles of correction and repair in research on second and foreign language learning. *Modern Language Journal*, 91 (4), 511-526.

Hamilton, R. (1994). Is implicational generalization unidirectional and maximal? Evidence from relativization instruction in a second language. *Language Learning*, 8, 351-577.

Hyltenstam, K. (1984). The Use of typological markedness conditions as predictors in second language acquisition: The case of pronominal copies in relative clauses. In R. Andersen (Ed.), *Second languages: a cross-linguistic perspective* (pp. 39-58). Rowley, Mass.: Newbury House

Ioup, G., & Kruse, A. (1977). Interference vs. structural complexity in second language acquisition: Language universals as a basis for sequencing. In H. Brown, C. Yorio, & R. Crymes (Eds.), *On TESOL '77-Teaching and learning English as a second language: Trends in research and practice* (pp. 159-171). Washington, DC: TESOL.

Iwashita, N. (2003). Negative feedback and positive evidence in task-based interaction. *Studies in Second Language Acquisition*, 25, 1-36.

Izumi, S. (2003). Processing difficulty in comprehension and production of relative clauses by learners of English as a second language, *Language Learning*, 53(2), 285-323.

Jeon, K. S. (2004). *Interaction-driven learning: Characterizing linguistic development*, Ph.D. dissertation. Georgetown University. Washington D.C.

Jeon, K. S. (2007). Interaction-driven L2 learning: Characterizing linguistic development. In A. Mackey (Ed.), *Conversational interaction in second language acquisition: A collection of empirical studies* (pp. 379-403). New York: Oxford University Press.

Johnson, K. (1995). *Understanding communication in second language classrooms*. Cambridge: Cambridge University Press.

Jung, E. H. (1999). The organization of second language classroom repair. *Issues in Applied Linguistics*, 10 (2), 153-171.

Kasper, G. (1985). Repair in foreign language teaching. *Studies in Second Language Acquisition*, 7, 200-215.

Keenan, E. & Comrie, B (1977). Noun phrase accessibility and Universal Grammar. *Linguistic Inquiry*, 8, 63–99.

Kurhila, S. (2006). *Second language interaction.* Philadelphia: John Benjamins.

Lardiere, D. (1998). Case and tense in the "fossilized" steady state. *Second Language Research*, 14, 1-26.

Larsen-Freeman, D. E. (1975). The acquisition of grammatical morphemes by adult ESL students. *TESOL Quarterly*, 9, 409-419.

Liu, J. (2009). Self-repair in oral production by Intermediate Chinese Learners of English. *TESL EJ*, 13(1), 1-15.

Long, M. H. (1980). *Input, interaction, and second language acquisition*. Ph.D. dissertation. University of California, Los Angeles.

Long, M. H. (1981). Input, interaction and second language acquisition. *Annals of the New York Academy of Sciences*, 379, 259-278.

Long, M. H. (1983a). Linguistic and conversational adjustments to nonnative speakers. *Studies in Second Language Acquisition,* 5(2),177-193.

Long, M. H. (1983b). Native speaker/non-native speaker conversation in the second language classroom. In M. Clark, & J. Handscombe (eds.), *On TESOL '82. Pacificperspectives on language learning* (pp.207-25). Washington, D.C.: TESOL. Reprinted in M. H. Long, & J.C. Richards (eds.), *Methodology in TESOL. A book of readings* (pp. 339-54). New York: Newbury House/Harper and Row.

Long, M. (1996). The role of the linguistic environment in second language acquisition. In W.C. Ritchie and T. K. Bhatia (Eds.), *Handbook of language acquisition*: Vol. 2. Second language acquisition (pp. 413-468). New York: Academic Press.

Long, M. H., Inagaki, S., & Ortega, L. (1998). The role of implicit negative feedback in SLA: Models and recasts in Japanese and Spanish. *Modern Language Journal*, 82, 357-371.

Loschky, L. (1994). Comprehensible input and second language acquisition: what is the relationship? *Studies in Second Language Acquisition*, 16, 303-325.

Lyster, R. & Ranta, L. (1997). Corrective feedback and learner uptake: Negotiation of form in communicative classrooms, *Studies in Second Language Acquisition*, 20, 37-66.

Mackey, A. (1999). Input, interaction, and second language development. *Studies in Second Language Acquisition*, 21, 557-587.

Mackey, A. (2006). Feedback, noticing, and second language development: An Empirical study of L2 classroom interaction. *Applied Linguistics*, 27, 405-430.

Mackey, A., Oliver, R., & Leeman, J. (2003). Interactional input and the incorporation of feedback: An exploration of NS-NNS and NNS-NNS adult and child dyads. *Language Learning*, 53, 35-66.

Mackey, A., Philp, J. (1998). Conversational interaction and second language development: recasts, responses, and red herrings? *Modern Language Journal* 82, 338-356.

McDonough, K. (2001). *Exploring the relationship between modified output and L2 learning*. Georgetown University. Washington D.C.

McDonough, K. (2004). Learner-learner interaction during pair and small group activities in a Thai EFL context. *System*, 32, 207-224.

McDonough, K. (2007). Interactional feedback and the emergence of simple past activity verbs in L2 English. In A. Mackey (Ed.), *Conversational interaction in second language acquisition: A collection of empirical studies* (pp. 323-339). New York: Oxford University Press.

McHoul, A., W. (1990). The Organization of repair in classroom talk, *Language in Society*, 19(3), 349-377.

Nakahama, Y., Tyler, A., & van Lier, L. (2001).Negotiation of meaning in conversational and information gap activities: A comparative discourse analysis. *TESOL Quarterly*, 35 (3), 377-405.

Nassaji, H. (2011). Immediate learner repair and its relationship with learning targeted forms in dyadic interaction, *System*, 39, 17-29.

Nicholas, H., Lightbown, P. M., & Spada, N. (2001). Recasts as feedback to language learners. *Language Learning*, 51, 719–758.

Nobuyoshi, J., & Ellis, R. (1993). Focused communication tasks and second language acquisition. *English Language Teaching Journal*, 47(3), 203-210.

Nunan, D. (1991). Methods in second language classroom research: A critical review. *Studies in Second Language Acquisition*, 13, 249–274.

Prévost, P. & L. White. (2000). Missing surface inflection or impairment in second language acquisition? Evidence from tense and agreement. *Second Language Research*, 16, 103-133.

Pica, T., Kanagy, R., & Falodun, J. (1993). Choosing and using communication tasks for second language teaching and research. In G. Crookes & S. Gass (Eds.), *Tasks in language learning: Integrating theory and practice* (pp. 9-34). Clevedon, England: Multilingual Matters.

Pienemann, M. (1998). *Language processing and second language development: Processability theory*, Philadelphia: John Benjamins.

Ross-Feldman, L. (2007).Interaction in the L2 classroom: Does gender influence learning opportunities? In A. Mackey (Ed.), *Conversational interaction in second language acquisition: A collection of empirical studies* (pp.53-78). New York: Oxford University Press.

Sacks, H., Schegloff, E., & Jefferson, G. (1974). A simplest systematics for the organization of
turn-taking for conversation. *Language,* 50, 696-735.

Salaberry , R. (2000). *The development of past tense morphology in L2 Spanish*. Amsterdam:
Benjamins.

Sato, C.J. (1986). Conversation and interlanguage development: Rethinking and connection. In
R. Day (Ed.), *Talking to Learn: Conversation in Second Language Acquisition* (pp.22-
45). Rowley, MA: Newbury.

Schachter, J. (1974). An error in error analysis. *Language Learning*, 24(2), 205-214.

Schegloff, E., Jefferson, G., & Sacks, H. (1977). The preference for self-correction in the
organization of repair in conversation. *Language*, 53, 361-382.

Schwartz, L. (1980). The negotiation for meaning: Repair in conversations between second
language learners of English. In D. Larsen-Freeman (Ed.), *Discourse analysis in
second language research* (pp. 138-153). Rowley, MA: Newbury House.

Seedhouse, P. (1999). The relationship between context and the organization in the L2
classroom. *International Review of Applied Linguistics in Language Teaching*, 37(1),
59-80.

Seong, K. (2004). *Conversational repair strategies of teachers of English as a second language*.
Ph.D. dissertation. University of Illinois, Urbana-Champaign.

Shehadeh, A. (1999). Non-native speakers' production of modified comprehensible output and
second language learning. *Language Learning*, 49(4), 627-675.

Shehadeh, A. (2001). Self- and other-Initiated modified output during task-based interaction.
TESOL Quarterly, Vol. 35 (3), 433-457.

Shehadeh, A. (2003). Learner output, hypothesis testing, and internalizing linguistic Knowledge.
System, 31, 155-171.

Shehadeh, A. (2004). Modified output during task-based pair interaction and group interaction.
Journal of Applied Linguistics, 1(3), 351-382.

Skehan, P. (1998). *A cognitive approach to language learning*. Oxford: Oxford University Press.

Slimani-Rolls, A. (2005). Rethinking task-based language learning: what we can learn from the learners, *Language Teaching Research*, 9(2), 195–218.

Solt, S., Pugach, Y., Klein, E. C., Adams, K., Stoyneshka, I. & Rose, T. (2003). L2 perception and production of the English regular past: Evidence of phonological effects. Paper presented at The 28th Annual Boston University Conference on Language Development.

Suh, J-W. (2007). *Organization of other-initiated repair in English lingua franca business negotiation*. Ph.D. dissertation. Columbia University, New York.

Swain, M. (1985). Communicative competence: Some roles of comprehensible input and comprehensible output in its development. In S. Gass and C. Madden (Eds.), *Input in second language acquisition* (pp*.* 235-253). Rowley, MA: Newbury House.

Swain, M. (1995). Three functions of output in second language learning. In G. Cook & B. Seidlhofer (Eds.), *Principle and practice in applied linguistics: Studies in honor of H. G. Widdowson* (pp. 125-144). Oxford: Oxford University Press.

Swain, M. (1998). Focus on form through conscious reflection. In C. Doughty and J. Williams (Eds.), *Focus on form in classroom second language acquisition* (pp. 64-81).Cambridge: Cambridge University Press.

Swain, M. (2000). The output hypothesis and beyond: mediating acquisition through collaborative dialogue. In C. Lantolf (Ed.), *Sociocultural theory and second language learning* (pp. *97-114)*. Oxford: Oxford University Press.

Takahashi, N. (2007). *The differential effects of perceptual saliency on recasts in L2 Japanese: Learner's noticing, interpretation, detection, and subsequent oral production*. Ph.D. dissertation. University of Iowa.

van Lier, L. (1988). *The classroom and the language learner*. London: Longman.

van Lier, L. (1998). "Constraints and resources in classroom talk: Issues of equality and symmetry" in H. Byrnes (Ed.), *Learning foreign and second languages: Perspectives in research and scholarship* (pp.157-182). New York: Modern Language Association Of America.

VanPatten, B. (2004). Input processing in second language acquisition. In B. VanPatten (Ed.), *Processing instruction: Theory, research, and commentary* (pp. 5-31). Mahwah, NJ: Erlbaum.

Varonis, E. M., & Gass, S. M. (1985a). Non-native/ Non-native conversations: A model for negotiation of meaning. *Applied Linguistics*, 6 (1), 71-89.

Varonis, E. M., & Gass, S. M. (1985b). Miscommunication in native/non-native conversation. *Language in Society*, 14, 327-343.

Williams, J. (1999). Memory, attention, and inductive learning. *Studies in Second Language Acquisition*, 21, 1-48.

Yang, Y. & Lyster, R. (2010). Effects of form-focused practice and feedback on Chinese EFL learners' acquisition of regular and irregular past tense forms. *Studies in Second Language Acquisition*, 32, 235-263.

Yip, V. & Matthew, S. (1991). Relative complexity: Beyond avoidance. *CUHK Papers in Linguistics*, 3, 112-124.

Yorkey, R (2002). Talk-a-tivities: Problem solving and puzzles for pairs, Burlingame, CA: Alta Book Center.

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