THE ROLE OF TASK COMPLEXITY IN L2 PRAGMATIC DEVELOPMENT: AN INVESTIGATION OF THE COGNITION HYPOTHESIS

A Dissertation

by

YUNKYEONG CHOI

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Chair of Committee,	Zohreh R. Eslami
Committee Members,	Li-Jen Kuo
	Wen Luo
	Jyotsna Vaid
Head of Department,	Michael A. De Miranda

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ABSTRACT

This dissertation examines task complexity and its effects on learners' interaction, task performance, and subsequent second language (L2) learning. A systematic literature review and two empirical studies are included in the dissertation investigating the role of task complexity in second language pragmatics learning.

The first study includes a systematic investigation of previous literature on task complexity by synthesizing existing works which explore the effects of increasing task complexity along resource-directing task manipulations on learner-learner interaction and further L2 learning. Review of the literature revealed mixed findings due to possible mediating role of various learner- and task-related variables. Some methodological issues further complicated interpretation of the findings.

To fill the gaps found in the systematic review of the literature, the second study examined effects of cognitive and pragmatic task demands on promoting learner-learner interaction and how these two types of task complexity may influence learners' task performance during collaborative pragmatic tasks. In addition to these task design variables, role of pair-grouping variable based on learner proficiency was explored. Findings revealed significantly greater amount of interaction in tasks that exert greater cognitive demands on learners regardless of the tasks' pragmatic demands. Furthermore, significantly longer length of interaction was found in high proficiency pairs compared to lower proficiency pairs, suggesting positive effects of grouping learners with a high proficiency partner on promoting deeper discussion on pragmatic-related elements.

The third study employed a pre-post-delayed posttest design to investigate developmental outcomes of increased task complexity in pragmatics as well as possible moderating role of two individual learner variables (i.e., language proficiency and language anxiety). Findings demonstrated long-term benefits of collaborative pragmatic tasks in promoting learners' development of refusal speech act but no significant effect of tasks with higher cognitive complexity was found. In terms of the role of learner variables, the study was not able to find any interaction effect between task complexity and individual learner variables on learners' pragmatic development. Overall, the current dissertation illustrated potential benefits of implementing collaborative pragmatic tasks designed to promote learner-learner interaction on their pragmatics development, extending the role of cognitive task complexity into pragmatics development in task-based research.

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1. INTRODUCTION

This dissertation examines the construct of task complexity in task-based second language (L2) pragmatics instruction. Based on Peter Robinson's Cognition Hypothesis (1995, 2001a, 2001b, 2003, 2005, 2007a, 2007b, 2011), the dissertation explores how increased task complexity may play a role in promoting interaction among learners during task performance and lead to possible L2 pragmatics development. Three included dissertation studies provide a systematic investigation of previous research and further empirical evidence to the Cognition Hypothesis in the field of instructed pragmatics.

This introductory chapter presents a brief background of the dissertation topic and its significance in the field of second language acquisition (SLA). Next, the overarching purpose of the dissertation is stated followed by definitions of the main constructs that will be addressed throughout the dissertation. Then, it will conclude with an overview of the subsequent chapters in this dissertation that aim to expand the theoretical scope of task complexity research and provide insights for L2 pragmatics instruction.

1.1. Task Complexity and Robinson's Cognition Hypothesis

Over the past few decades, 'Tasks' have been widely investigated both as a research instrument for exploring second language (L2) learning and also as an important construct worth being examined in its own right in second language pedagogy as well as in second language acquisition (SLA) research (Ellis, 2003). Previous studies have supported possible beneficial role of 'tasks' in promoting L2 development by eliciting and processing of input, noticing of the target form, various interactional features, and production of language output (e.g., Bygate, Skehan, & Swain, 2001; Ellis & Shintani,

2013; Van den Branden, 2006). Thus, ‘tasks’ have been suggested by a number of L2 researchers as an effective alternative unit in designing and sequencing syllabus for L2 curriculum rather than a traditional method of using linguistic units (e.g., grammatical features, vocabulary) as a basis for language curriculum (Long, 1985, 1989, 2007; Long & Crookes, 1992; Skehan, 1996).

One of the major areas of interest among task-based researchers is how manipulations of various task-related factors may affect interaction among learners, language production during task performance, as well as subsequent L2 learning (Robinson, 2011). These task-related factors include task complexity (e.g., Nuevo, 2006; Révész, 2011; Robinson, 2001b, 2007b); task difficulty (e.g., Taguchi, 2007); task types (e.g., Gilabert & Barón, 2013; Gilabert, Barón, & Llanes, 2009; Kim, 2009b, 2012); task modality (e.g., Baralt, 2010); task familiarity (Mackey, Kanganas, & Oliver, 2007; Skehan, 1998); and planning time (e.g., Foster & Skehan, 1996; Skehan & Foster, 1997, 2005). Among these variables, task complexity, i.e., task-induced cognitive demands imposed on learners' limited cognitive resources, has been used by researchers as the basis of designing and sequencing tasks (e.g., Baralt, 2010; Gilabert et al., 2009; Kim, 2009a, 2009b; Révész, 2009, 2011; Robinson, 2001a, 2007b).

Based on cognitive theories of second language acquisition (SLA), two main hypotheses were proposed: Skehan’s Limited Capacity Hypothesis (Skehan, 1998) and Robinson’s Cognition Hypothesis (Robinson, 1995). Both models focus on learners’ allocation of attentional resources during task performance, but they differ in terms of their predictions on the effect of increased cognitive demands on learners’ linguistic performance. Skehan claimed that learners’ attentional resources are limited; thus, if a task

requires high level of cognitive processing, less attention will be available to be given to producing accurate and complex linguistic output (Skehan, 1998; Skehan & Foster, 1999, 2001). In other words, cognitively complex tasks will allow less attention to linguistic aspects (i.e., fluency, accuracy, complexity), resulting in less accurate and less complex language production. On the other hand, Robinson proposed that learners have multiple and non-competitional pools of attention and there is no trade-off between attention to accuracy and attention to complexity of language production. He claimed that cognitively complex tasks can promote more accurate and linguistically complex language, more interaction-driven learning opportunities and incorporation of forms made salient in the input. Robinson's Cognition Hypothesis has improved upon other proposals on task complexity by providing a systematic framework for manipulating task complexity, allowing researchers to systematically examine its effects on L2 production and learning.

Based on his earlier proposals, Robinson provided a systematic framework for understanding and manipulating task complexity and suggested pedagogical principles for designing and sequencing tasks in task-based syllabus. In his Cognition Hypothesis (Robinson, 2001a, 2003, 2005, 2007a, 2011), Robinson claimed that tasks should be designed and sequenced in the direction of increasing cognitive complexity and proposed several predictions with regard to the effect of task complexity on promoting interaction-driven learning opportunities, language production, and L2 learning. To examine task complexity, Robinson proposed a taxonomy of task characteristics known as Triadic Componential Framework (TCF) consisting of task complexity, task difficulty and task condition. In his framework, Robinson distinguished task and learner characteristics into three groups of factors (i.e., task complexity, task difficulty, and task condition) and

claimed that these factors influence learners' task performance as well as L2 learning by interacting with each other.

Task complexity refers to intrinsic cognitive demands of a task and consists of resource-directing and resource-dispersing dimensions which can be manipulated to increase or decrease the cognitive demands of tasks as learners engage in the task. Resource-directing variables make greater demands on learners' attention and working memory in a way that directs them to linguistic resources during task performance while resource-dispersing variables make learners disperse their attention over non-linguistic aspects during task performance. Therefore, increasing task complexity along resource-directing dimensions is expected to promote noticing of task-specific linguistic features, which can facilitate interlanguage development (Robinson, 2001a, 2007b). Next, task difficulty refers to how learners "perceive" the demands of the task and thus, it is deeply related to learners' ability (e.g., working memory, aptitude) and affective (e.g., motivation, anxiety) variables. Based on these individual learner variables, tasks with the same level of task complexity could be perceived differently by two different learners. Finally, task condition factors refer to interactional factors, which consist of participation required on task (e.g., whether the information is one-way or two-way, whether the goal of the task is convergent or divergent, and whether the solution is open or closed) and participant variables, such as participants' L2 proficiency (whether similar or different) and familiarity with each other. These task condition factors can significantly influence learners' task performance as well as interaction among learners by interacting with the other two variables (i.e., task complexity and task difficulty).

Based on this framework, Robinson's Cognition Hypothesis predicts that increasing task complexity in resource-directing dimensions will promote a) learners' language accuracy as well as complexity of learners' language output, and b) production of interaction-driven learning opportunities, which may lead to subsequent L2 development (Robinson, 2001a, 2001b, 2003, 2005, 2007b). A number of empirical studies have tested the predictions of the Cognition Hypothesis and many have supported Robinson's hypothesis in terms of tasks with higher cognitive complexity facilitating more interaction between leaners as indicated by language related episodes (LREs, i.e., "any part of a dialogue in which students talk about the language that they are producing, question their language use, or other-or self-correct", Swain & Lapkin, 1998, p. 70) and negotiation of meaning during task performance (Robinson, 2001b, 2003, 2005, 2007b). However, some studies have found inconsistent results when differences in operationalization of task complexity and influence of other task-related as well as learner-related variables (e.g., L2 proficiency, pair groups, anxiety, working memory, creativity) were taken into account (e.g., Albert, 2011; Kim, 2009a; Kim & Tracy-Ventura, 2011; Kormos & Trebits, 2011; Révész, 2011; Robinson, 2007b). More empirical research is needed on how task complexity may interact with these task-related as well as learner-related variables and affect occurrences of interactional features during task performance as well as L2 learning. Furthermore, there has been a relative lack of research on developmental outcomes of engaging in tasks with different levels of cognitive complexity, particularly in the area of L2 pragmatics (Gilabert & Barón, 2013; Kim & Taguchi, 2015, 2016; Taguchi, 2007). Further investigation of developmental outcomes of carrying out tasks with different levels of cognitive task demands in L2 pragmatics development is warranted as it can provide

valuable insights for designing pragmatic tasks and implementing task-based syllabus in instructed pragmatics.

1.2. Statement of the Problem

Previous literature has demonstrated the importance and benefits of using tasks in the field of SLA and L2 pedagogy (e.g., Bygate, Skehan, & Swain, 2001; Samuda & Bygate, 2008). Particularly collaborative tasks are shown to facilitate interaction among learners and enhance various language learning opportunities during task performance, which may lead to L2 development (Ellis & Shintani, 2013; Long, 1985; Long & Crooks, 1992; Philp, Adams, & Iwashita, 2014). However, there has been limited research which considered various task design variables when examining the effectiveness of task-based instruction on promoting occurrence of interactional features and L2 learning. Thus, more classroom-based studies are needed which explore the role of task design variables in task-based language teaching context.

A number of task-based research have investigated task complexity as one of task design variables and tested Robinson's Cognition Hypothesis. Their findings have mainly indicated that increased task complexity promotes interaction-driven learning opportunities, which could potentially lead to L2 learning (Kim, 2009a, 2009b; Kim & Taguchi, 2015; Robinson, 2001b, 2007b). However, there clearly has been limited investigation on how other task-related and learner-related variables may interact with task complexity and affect learner-learner interaction during task performance as well as their L2 learning. Systematic investigation of the relationship between these variables and the extent to which task complexity may be affected by task difficulty and task conditions is needed to fully understand how to manipulate task complexity along with other variables

in his framework. Furthermore, previous task complexity research has mostly overlooked pragmatic aspects of interaction and mainly focused on linguistic features such as grammar and vocabulary despite the natural association between interaction and pragmatics (Kim & Taguchi, 2015, 2016). As pragmatics depends on unique relationship between a linguistic form and a sociocultural context, it would be important to investigate whether findings from previous task-based interaction studies can be generalized to the field of L2 pragmatics (Kim & Taguchi, 2016; Taguchi, 2019).

Although previous task-based interaction studies have demonstrated that tasks with higher task complexity can promote more interaction among learners compared to those with lower task complexity, there is a clear need to investigate whether these interaction-driven learning opportunities actually lead to further L2 development. To date, only few studies have examined developmental outcomes of different task complexity conditions and found conflicting findings with regard to whether increased task complexity facilitates L2 learning (e.g., Kim, 2009b; Kim & Taguchi, 2015; Nuevo, 2006). Furthermore, these studies have mostly targeted developmental outcomes of task complexity on linguistic aspects (e.g., Kim, 2009b; Nuevo, 2006; Nuevo, Adams, & Ross-Feldman, 2011) and the role of task complexity and its potential effect in L2 pragmatics learning has been under-researched. As pragmatics requires understanding of both linguistic forms (i.e., pragmalinguistics) and social context in which the linguistic forms are used (i.e., sociopragmatics), investigation of task complexity effects on pragmatics development can advance our knowledge in instructional pragmatics research. Investigation of the Cognition Hypothesis in L2 pragmatics learning can also expand the theoretical framework of L2 pragmatics instruction.

In order to fill the gaps in the previous literature, this dissertation aims to investigate the interaction-driven learning opportunities and subsequent pragmatic development that may arise from carrying out pragmatic tasks with different levels of task complexity. Examining developmental outcomes of carrying out tasks with different level of cognitive task demands in L2 pragmatics learning can provide valuable insights for designing pragmatic tasks and implementing task-based syllabus in instructed pragmatics.

1.3. Overarching Purpose of the Dissertation

This dissertation focuses on testing Robinson's Cognition Hypothesis, particularly in terms of increased task complexity promoting more interaction-driven learning opportunities related to pragmatic features and leading to possible L2 pragmatics development. The role of various task design variables (e.g., cognitive task complexity, pragmatic task demands) and learner-related variables (e.g., language proficiency, language anxiety) will also be investigated throughout the dissertation. The dissertation study is theoretically-based on three perspectives: Cognition hypothesis (Robinson, 1995, 2001a, 2003, 2005, 2007a), interaction hypothesis (Long, 1996; Mackey & Gass, 2006) and task-based language teaching (Ellis, 2003). From an interaction hypothesis perspective, interactional features occurring during learners' task performance are examined in terms of facilitating L2 development. Next, the role of varying degrees of task complexity and its interaction with learners' perception of task difficulty and various task condition variables (e.g., pair-grouping) are examined from Robinson's Cognition Hypothesis. Finally, the benefits of using pragmatic tasks on promoting L2 pragmatics development are addressed from task-based language teaching perspective. Investigation of

the effects of task complexity on L2 pragmatics learning can expand the theoretical scope of task complexity research and provide insights for L2 pragmatics instruction.

1.4. Definition of Constructs

In this section, the main constructs that will be addressed throughout the dissertation as well as the relationships among these constructs will be introduced. Eight major constructs include tasks, learner-learner interaction, L2 proficiency, language anxiety, task complexity, pragmatic demands, learning opportunities, and pragmatic competence.

1.4.1. Tasks

Previous researchers have proposed various definitions of a 'task', and there has been no single agreed upon definition both in research and language pedagogy (Crookes, 1986, p.1 as cited in Ellis, 2003). Some researchers, such as Long (1985), provided a rather broad definition by including tasks that require language and also those that can be performed without using language while others, such as Richards, Platt, and Weber (1985) and Nunan (1989), only included activities that involve language as tasks. As Ellis (2003) pointed out, definitions have varied in terms of a) the scope of the task, b) the perspective from which a task is viewed, c) the authenticity of a task, d) the language skills needed to perform a task, e) cognitive processes involved in task performance, and f) the outcome of a task (p. 2). Table 1 below presents a number of definitions of task proposed by previous researchers.

Table 1.1 Examples of definition of a task (Adapted from Ellis, 2003, p. 4-5).

Author	Definition of a 'task'
Long (1985)	A task refers to numerous real-world activities that people carry out in their everyday lives, such as making a reservation at a restaurant, buying groceries, writing a check, borrowing a book from a library, and finding a street destination.
Richards, Platt, & Weber (1985)	A task is an activity or action that is carried out as the result of processing or understanding language. It usually requires the teacher to specify what will be regarded as successful completion of the task. Although tasks may or may not involve the production of language, using a variety of tasks in language classrooms can make language teaching more communicative as it can provide a purpose for classroom activity which goes beyond practice of language for its own sake.
Crookes (1986)	A task is a piece of work or an activity, usually with a specified objective, undertaken as part of an educational course, at work, or used to elicit data for research whose overall goal is to elicit language use.
Prabhu (1987)	A task refers to an activity which involves learners in some process of thought, such as making connections between pieces of information, deducting new information, and evaluating information, in order to arrive at an outcome.
Nunan (1989)	A task is a classroom work which involves learners in comprehending, manipulating, producing, or interacting in the target language with focus on meaning rather than form. A task also needs to have a sense of completeness, being able to stand alone as a communicative act in its own right.
Bygate, Skehan, & Swain (2001)	A task is an activity which requires learners to use language, with emphasis on meaning, in order to attain an objective. This definition can also be modified to reflect the different purposes of tasks.

Table 1.1 Continued

Author	Definition of a 'task'
Ellis (2003)	A task refers to language activities which resemble real-world and elicit meaning-focused language use with a clearly defined communicative outcome. Tasks can involve any of the four language skills and learners are required to use language in ways that will facilitate their language development in order to arrive at a successful outcome.

As shown in Table 1, most researchers emphasize the resemblance of pedagogic tasks to real-world tasks and use of language as a "tool" for achieving a communicative outcome rather than language itself being the "object" to be studied although some focus-on-form is necessary (Ellis & Shintani, 2013, p.136). The current dissertation adopts the definition of Ellis (2003), who proposed the following criteria in order for an instructional activity to be classified as a 'task' (p. 9).

1. The primary focus should be on meaning where learners use language pragmatically rather than displaying language, which will promote development of learners' L2 proficiency.
2. A task incorporates some kind of 'gap', which will motivate learners to use language (either receptive, productive, or both) in order to close it.
3. Learners make use of their linguistic and non-linguistic resources in order to complete the task.
4. A task elicits learners' language use which resembles language used in the real-world.

5. A task requires learners to employ various cognitive processes (e.g., selecting, classifying, ordering, and reasoning) and these processes influence learners' linguistic choice during the task performance.
6. There is a clearly defined communicative outcome that learners need to achieve by using language as the means to achieve the outcome.

1.4.2. Learner-Learner Interaction

Learner-learner interaction refers to "conversations that learners participate in" between interlocutors (Gass & Mackey, 2015, p. 183). During the interaction processes, learners naturally encounter input, receive feedback, and also produce output. The interaction approach to SLA has claimed that these processes are beneficial for learners' L2 development as they can provide comprehensible input, interactional feedback, negotiation of meaning, as well as modified output (Long, 1983, 1994, 1996). Particularly with Long's updated interaction hypothesis (1996), a large number of empirical research studies have examined how interaction may play a role in facilitating L2 development, adopting cognitive concepts derived from psychology, such as noticing, attention, and working memory (Gass, 2003; Gass & Mackey, 2015), and also the relationship between specific interactional features (e.g., language-related episodes [LREs], recasts) and learning outcomes (Mackey, 2007). These studies have generally found that interaction facilitates L2 acquisition by raising learners' attention to language forms in meaning-oriented contexts, providing them with corrective feedback, and also pushing them to produce more target-like utterances (Gass & Mackey, 2015; Keck, Iberri-Shea, Tracy-Ventura, & Wa-Mbaleka, 2006; Loewen & Sato, 2018; Mackey, 2007; Mackey & Goo,

2007). Indeed, researchers have reached a consensus that "there is a robust connection between interaction and learning" (Gass & Mackey, 2015, p. 181).

Moving on from examining general effectiveness of interaction, more studies have started to explore specific components of interaction that may be more or less effective in facilitating L2 learning in certain contexts for certain types of learners (Mackey, Abbuhl, & Gass, 2012). Particularly learner-learner interaction in task-based language teaching (TBLT) context has received attention as task-based language teaching predominantly takes place in interactive context where learners engage in interaction with other learners to complete a given task (Ellis, 2003). The current dissertation focuses on various dimensions of learner-learner interaction during task performance.

1.4.3. Learning Opportunities

The term learning opportunities refers to various interactional modifications such as negotiation of meaning, recasts, language-related episodes (LREs), and metalinguistic talk which occur during interaction. It has been widely used in interaction research to indicate the positive relationship between these interactional features and L2 learning (Gilabert et al., 2009; Kim, 2009a, 2009b; Nuevo, 2006; Robinson, 2007b). In task-based language teaching (TBLT), researchers have examined how manipulation of various task-related and learner-related variables would influence interaction-driven learning opportunities during task performance. The present dissertation will examine how manipulation of task complexity in task-based interaction would promote interaction-driven learning opportunities, operationalized as pragmatic-related episodes (PREs), which may lead to language learning.

1.4.4. L2 Proficiency

L2 proficiency is generally defined as individual learners' knowledge of a second language and their ability to use the language "effectively and appropriately throughout the range of social, personal, school, and work situations required for daily living in a given society" (Peregoy & Boyle, 2005, p.34). L2 proficiency includes learners' ability to use the language in contextually appropriate manners (i.e., pragmatic competence).

Learners' L2 proficiency has been considered as an important individual variable in addition to other learner variables such as gender, anxiety, working memory, aptitude, and motivation in the context of task-based language teaching (TBLT) as it can have significant influence on the amount of learner-learner interaction, learners' task performance, and their subsequent L2 learning (e.g., Iwashita, 2001; Kim & McDonough, 2008; Nassaji, 2013; Watanabe & Swain, 2007; Williams, 1999). The current dissertation focuses on learners' language proficiency in terms of their ability to understand spoken and written English, and it will be investigated in Chapter Four as one of learner variables that may moderate the relationship between task complexity and L2 development.

1.4.5. Language Anxiety

Language anxiety is another individual variable that may influence interaction, task performance, and language learning. It is defined as "the apprehension experienced when a situation requires the use of a second language with which the individual is not fully proficient ... the propensity for an individual to react in a nervous manner when speaking, listening, reading, or writing in the second language" (MacIntyre, 1999, p. 5).

Language anxiety can be aroused by situational factors (e.g., tests, speaking in front of the class), which may interfere with learners' ability to process input and produce output

during L2 interaction (Horwitz, Horwitz, & Cope, 1986; MacIntyre & Gardner, 1989, 1991; Sheen, 2008). Although it has been considered as an important affective factor influencing the success of language learning, only few researchers have examined this construct within the interaction approach (Horwitz, 2001; Sheen, 2008). Some have found language anxiety to have a facilitating effect (e.g., Spielman & Radnofsky, 2001) and others found a debilitating effect (e.g., Horwitz, 2001; Krashen, 1982, 1985), while still others found no effect of anxiety on learners' performance and L2 learning (e.g., Révész, 2011; Sparks & Ganschow, 1991). Particularly of interest in this dissertation study is the possible moderating effects of language anxiety on learners' pragmatic learning.

1.4.6. Task Complexity

Task complexity has received considerable research attention in the field of task-based language teaching (TBLT) as it is closely connected to task design, task sequencing, as well as making decisions on L2 curriculum and syllabus design (Robinson, 2001b, 2007b). Particularly, it has been considered as one of the possible task design features which can be manipulated in order to systematically research its effects on learners' task performance, interaction-driven learning opportunities, as well as their L2 learning (Gilabert & Barón, 2013). The current dissertation adopts Robinson's definition of task complexity which defines it as "the result of the attentional, memory, reasoning, and other information processing demands imposed by the structure of the task on the language learner" (Robinson, 2001b, p.29).

Previous researchers have suggested that tasks be developed and sequenced in the direction of increasing their task complexity by approximating the demands of the real-world target task (Long, 1985; Long & Crookes, 1992; Robinson, 2005, 2007b, 2011).

These tasks are considered as pedagogical tasks which could have different levels of cognitive complexity affecting learners' task performance, interactions with their interlocutor, and language development (Robinson, 2001a, 2001b, 2003, 2005, 2007a, 2011).

1.4.7. Pragmatic Demands

In this study we focus on pragmatic demands of tasks as one of task-related variables (in addition to cognitive task demands) that can affect quality and quantity of interaction during task performance and L2 learning. Pragmatic task demands reflect various social and interpersonal variables such as the relationship between the interlocutors and the context of the interaction. The current dissertation follows Brown and Levinson's (1987) politeness theory to operationalize pragmatic task demands. Their theory proposes that social and interpersonal factors (i.e., interlocutors' power difference [P], social distance [D], and the size of imposition [R]) influence the level of directness when a speaker carries out a speech act. These contextual variables determine the level of pragmatic demands of a task. For example, a task has high pragmatic demands when its target speech act has a large size of imposition and addressed to a person who has higher power and larger social distance (e.g., refusing your professor's offer to work as a teaching assistant). On the other hand, if a task involves a speech act with a low degree of imposition which is addressed to a person who has equal social relationship and smaller social distance (e.g., refusing your brother's suggestion to go see a movie), it is considered to have lower pragmatic demands.

1.4.8. Pragmatic Competence

Pragmatic competence is defined as the knowledge of using appropriate pragmalinguistic forms in relation to contextual variables such as power, distance, and imposition (Brown & Levinson, 1987; Canale, 1983; Canale & Swain, 1980; Chomsky, 1980). This dissertation examines development of learners' pragmatic competence in terms of using appropriate refusal-making expressions.

1.5. Overview of the Studies

This dissertation study examines the role of task complexity as a major task design variable and its effects on interactional features during task performance and potential L2 pragmatics development based on the predictions of Robinson's Cognition hypothesis. It consists of three articles (i.e., one systematic literature review and two empirical studies) aiming to provide empirical evidence to support Robinson's task complexity framework in instructional pragmatics and provide implications for implementing task-based pragmatics instruction in classroom contexts.

Chapter 1 provided theoretical background of the Cognition hypothesis and overall findings of previous research in the field. It also laid out the rationale for the dissertation study. Definitions of the key terms were also introduced in the chapter, which will be discussed in further detail throughout the dissertation.

Chapter 2 presents a systematic review of the literature which provides accumulated findings on the Cognition Hypothesis by synthesizing studies which investigated the effects of increasing resource-directing task demands on promoting interaction-driven learning opportunities, and how various learner-related and task-related factors may mediate this effect. The results from a subset of studies are also synthesized in

order to examine whether the increase in interaction opportunities during learner-learner interaction actually lead to subsequent L2 development.

Chapter 3 introduces an empirical study which explores the relationship among task complexity, pragmatic task characteristics, and interaction-driven learning opportunities operationalized as pragmatic-related episodes (PREs). The study examines the effect of task complexity increased along the resource-directing dimension on generating interaction-driven learning opportunities, particularly operationalized as pragmatic-related episodes (PREs), during the process of carrying out collaborative pragmatic tasks in pairs. Furthermore, it presents findings in regard to whether this effect would vary in tasks with different degrees of pragmatic situational demands and how these cognitive and pragmatic task demands would influence the quality of task outcomes in terms of the use of speech act of refusal-making.

Chapter 4 presents another empirical study which explores whether task-complexity increased along resource-directing dimension leads to subsequent development of pragmatic knowledge and how this relationship may be moderated by various learner-related variables, including learners' L2 proficiency and level of three types of language anxiety (i.e., input, processing, and output anxiety [IPOAS]). Following previous researchers' call for independently measuring the construct of task complexity, operationalization of the task complexity is also examined in order to verify if the designed difference in task complexity matches the actual cognitive load perceived by the learners. This allows us to draw a conclusion on "whether cognitive task complexity leads to theorized effects on task performance and L2 development" (Sasayama, 2016, p. 233).

Finally, Chapter 5 provides a summary of the key findings of the three articles and discusses the pedagogical implication of the findings. Recommendations and suggestions for future research are proposed along with limitations of the included studies.

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2. TASK COMPLEXITY AND ITS EFFECTS ON INTERACTION-DRIVEN LEARNING OPPORTUNITIES AND L2 DEVELOPMENT: A SYNTHESIS OF RESEARCH

2.1. Introduction

For the past several decades, a number of researchers in the field of second language acquisition (SLA) have suggested using alternative measures in designing syllabus for second language (L2) curriculum, rather than following the traditional method of using linguistic units as a basis of designing and sequencing syllabus (Long, 1985, 2007; Long & Crookes, 1992; Robinson, 2001a, 2005). 'Tasks' have been recommended by many researchers as an effective alternative unit that could be used as a basis for designing and sequencing syllabus as they can provide appropriate target language input in an authentic context as well as providing ample opportunities for L2 learners to practice their developing language (Long, 1985).

In order to promote L2 learning, task-based researchers claim that pedagogic tasks should be developed and sequenced in the direction of gradually approximating the demands of the real-world target task (Long, 1985; Long & Crookes, 1992; Robinson, 2005, 2007b, 2011). Among various criteria that have been proposed for sequencing tasks, task complexity, i.e., "the result of the attentional, memory, reasoning, and other information-processing demands imposed by the structure of the task on the language learner," has received increasing attention from researchers (Robinson, 2001b, p. 28). Specifically, Skehan's Limited Capacity Model (Skehan, 1998) and Robinson's Cognition Hypothesis (Robinson, 1995) have had a substantial impact on the recent empirical studies

on whether and how manipulating cognitive task complexity affected learners' language use and L2 development. In his limited capacity model (Skehan, 1998; Skehan & Foster, 1999, 2001), Skehan claimed that a trade-off occurs between attention to form and attention to meaning during task performance and thus, more complex tasks will allow less attention to language as they will demand more attention to content. Contrary to Skehan's single-resource model of attention, Robinson's multiple-resource model acknowledged learners' ability to access multiple and non-competitional pools of attention, which has been extensively researched in the field of TBLT.

The Cognition Hypothesis was first proposed by Robinson (1995) with an aim to provide a systematic framework for understanding and manipulating task demands in the field of task-based language teaching (TBLT). A large number of empirical studies have tested the predictions of the Cognition Hypothesis, particularly in task-based interactions (e.g., Kim, 2009a, 2009b, 2012; Nuevo, 2006; Révész, 2011; Riccardi, 2014; Robinson, 2001b, 2007b). Research shows that pedagogical tasks with differing levels of cognitive complexity would alter the influence on the task performance, interactions, and language development of L2 learners (Robinson, 2001a, 2001b, 2003, 2005, 2007a, 2011). Studies on task complexity based on Cognition hypothesis, however, have not yielded consistent results to support Robinson's Hypothesis, possibly due to differences in operationalization of task complexity and also influence of other task-related as well as learner-internal variables. Moreover, previous work has mostly overlooked the potential developmental outcomes resulting from engaging in tasks with different levels of cognitive complexity (Kim, 2009b, 2012; Nuevo, 2006). To be specific, previous studies analyzed learners' language production during task performance by using various measures of CALF (i.e.,

syntactic complexity, accuracy, lexical complexity, and fluency) without examining whether learners' performance during task actually led to subsequent L2 learning.

Despite the large number of empirical studies during the last two decades, the Cognition Hypothesis and its effects on language learning still need to be examined by synthesizing the body of existing works (Jackson & Suethanapornkul, 2013; Norris & Ortega, 2006). To our knowledge, the only study that has synthesized previous work on Cognition Hypothesis is by Jackson and Suethanapornkul (2013). The authors reviewed previous research on the Cognition hypothesis published between 1995 and February 2010, specifically focusing on the overall effects of raising resource-directing task demands on learners' language production during monologic tasks. To date, there have been no systematic review papers that have synthesized empirical studies on the role of task complexity in promoting learning opportunities during task-based interactions in dialogic tasks, and whether these learning opportunities lead to subsequent L2 learning. As an attempt to address this gap, the present paper aims to provide accumulated findings on the Cognition Hypothesis by synthesizing studies which explored the effects of increasing task complexity along resource-directing task manipulations on learner-learner interaction during task performance. Furthermore, a subset of these studies will be analyzed to find out whether interaction-driven learning opportunities that occur in tasks with different levels of complexity would lead to learners' subsequent L2 learning.

2.2. Task Complexity: The Cognition Hypothesis and the Limited Capacity Hypothesis

In the field of SLA, task complexity is defined as "the result of the attentional, memory, reasoning, and other information processing demands imposed by the structure of

the task on the language learner" (Robinson, 2001b, p.29). Drawing from research on first language (L1) task complexity and information-processing approaches to L2 learning, earlier researchers (e.g., Brindley, 1987; Candlin, 1987; Crookes, 1986, Long, 1985; Nunan, 1989) have claimed that task complexity variables, as one of the task design characteristics, should be clearly differentiated from learner characteristics.

More recent models of task complexity (i.e., the Limited Capacity Hypothesis and the Cognition Hypothesis) focused on learner's attention as capacity when defining task complexity (Robinson, 2011) and proposed two different views toward how learners allocate their attention during task performance and its consequences for linguistic complexity, accuracy, and fluency. In his Limited Capacity Hypothesis, Skehan (1996, 1998, 2007) claimed that learners' attentional resources are limited so that increasing task complexity reduces a pool of attentional capacity as learners engage in task performance. Supported by the Limited Capacity Hypothesis, Skehan (1998) and Skehan and Foster (1999, 2001) claimed that a trade-off occurs between attention to form and attention to meaning during task performance. Thus, more complex tasks will demand more attention to content, and consequently, will allow less attention to language. Furthermore, as learners cannot pay attention to all aspects of language production (e.g., fluency, accuracy, and complexity) at the same time due to their limitations in attentional resources, tasks can promote either increased complexity or accuracy, but not both (Kim, 2012). Contrary to Skehan's (1998) single-resource model of attention, Robinson (2001a, 2001b, 2003, 2005, 2007a, 2011; Robinson & Gilabert, 2007) argues that learners are able to access multiple and non-competitive pools of attention and thus, there is no trade-off between attention to accuracy and attention to complexity of language production. Rather, increasing task

complexity along resource-directing dimensions are predicted to result in more accurate and linguistically complex language production as well as more negotiation of meaning and increased attention to forms made salient in the input. Robinson's Cognition Hypothesis has improved upon other proposals on task complexity by providing a systematic framework for manipulating task complexity, which allows comparison and design of tasks (Nuevo, 2006). As the present paper is based on Robinson's Cognition Hypothesis, his task complexity model and his hypothesis will be discussed in detail in the following section.

2.3. Robinson's Triadic Componential Framework

Drawing from his earlier proposals, Robinson (2001a, 2001b, 2005) proposed the most well-received task complexity model. In his model, sources of a task's cognitive demand are differentiated into three group of factors (i.e., task complexity, task conditions, and task difficulty), and these factors influence learners' task performance and further L2 learning by interacting with each other (Robinson, 2001a).

The first group of factors is related to task complexity, which refers to cognitive factors related to the design features of a task. These factors are "represented as dimensions, plus or minus a feature, but can also be thought of in some cases as continuums, along which relatively more of a feature is present or absent" (Robinson, 2001a, p. 293-294). Task complexity dimensions can be manipulated to increase or decrease the cognitive demands of tasks on learners as they engage in the task. For instance, a task which requires learners to describe events that are happening now, in the context shared by both interlocutors, (+ here-and-now), provides fewer number of elements for them to describe or distinguish (+ few elements), and does not require further reasoning

in addition to simple delivery of information (- reasoning). These tasks make less demands on learners' attention and working memory compared to tasks which require them to describe events that happened "elsewhere in the past" (- here-and-now) with larger number of elements to describe or distinguish (- few elements), and also further reasoning is needed in order to support their statement (+ reasoning) (Robinson, 2001a, p. 294). Moreover, when learners are required to perform a task that they have prior knowledge about (+ prior knowledge), requires a single activity (+ single task) with planning time (+ planning time), it is considered less cognitively demanding than performing tasks which require performing more than two steps simultaneously during the task (- single task) without any planning time (- planning time) and prior knowledge (- prior knowledge).

Robinson made further distinction between these two categories (i.e., resource-directing and resource-dispersing variables) as they differ in terms of learners' resource allocation during L2 task performance. Robinson (2001a, 2001b, 2003, 2005, 2007a) classifies task complexity into two dimensions: cognitive/conceptual (i.e., resource-directing) and performative/procedural (i.e., resource-dispersing) demands. Resource-directing variables (i.e., [± few elements], [± hear and now], and [± reasoning demand]) of task complexity make greater demands on learners' attention and working memory in a way that directs them to linguistic resources during task performance (Robinson, 2001b). Thus, increasing task complexity along resource-directing dimensions can help learners pay attention to specific linguistic features. On the other hand, resource-dispersing variables (i.e., [± planning], [± single task], and [± prior knowledge]) make increased performative-procedural demands on learners' attentional and memory resources, but they do not direct them to any specific language features (Robinson, 2001a, 2001b, 2005).

Rather, engaging learners in tasks that are more complex along resource-dispersing dimensions makes them disperse their attention over non-linguistic areas during task performance.

Through labeling task complexity factors according to its presence or absence, Robinson's proposal has enhanced previous proposals on task complexity, as they can be manipulated by the task designer in a proactive manner, allow comparison of different task types, and be used as the basis for sequencing decisions (Robinson, 2001a, 2001b, 2005). In line with earlier task complexity researchers, Robinson argued that these task complexity factors need to be clearly distinguished from learner factors contributing to task difficulty.

Task difficulty refers to learners' perception of the demands of the task and it can be influenced by both affective variables (e.g., anxiety, motivation) and by ability factors (e.g., working memory, aptitude) (Robinson, 2001a). Due to these learner factors, the same task could be perceived differently by two learners. In other words, Robinson claims that task difficulty variables may be able to explain variation in two learners' performance while performing the same task with same level of complexity, while task complexity can explain variation in a single learner's performance in two different tasks with different level of complexity (Robinson, 2001a). However, as these affective variables are difficult to, "or impossible, to diagnose in advance of engagement with the task in context", and can also be affected by various learner factors, they can "therefore play little role in *a priori* decisions about task sequencing, although they are extremely important to assess on-line during classroom activity" (Robinson, 2001a, p.295).

Finally, task condition factors refer to interactional factors including participation required on task (e.g., one-way or two-way information, convergent/divergent goals, open/closed solution) and participant variables (e.g., same or different gender of the participants or familiarity with each other). Similar to task difficulty variables, Robinson argues that task condition factors are also "unlikely to be a useful basis for a priori sequencing decisions" as these pedagogic task conditions are decided based on "the nature of the target task being approximated" (Robinson, 2001a, p.295). In order to explain how this triadic componential framework could play a role in learners' L2 learning, Robinson (2001a, 2001b, 2003, 2005, 2007a, 2011; Robinson & Gilabert, 2007) proposed a series of predictions based on his Cognition Hypothesis, motivated by the information- processing (Candlin, 1987; Long, 1985) and interactional approach (Long, 1996; Mackey & Gass, 2006), which will be discussed in the following section.

2.4. Predictions of the Cognition Hypothesis

In his Cognition Hypothesis, Robinson (2001a, 2001b, 2003, 2005, 2007b, 2011) predicts that increasing complexity along resource-directing dimensions raises the functional demands of communicative tasks, with having effects in three main dimensions: learners' language production, interactional features during task performance, and the involvement of individual learner factors. Tasks with increased cognitive complexity in resource-directing dimensions will:

> (a) push learners to greater accuracy and complexity of L2 production in order to meet the consequently greater functional/communicative demands they place on the learner; (b) promote interaction and negotiation work, and heightened attention to, noticing of, and incorporation of forms made salient in the input; and that (c)

> individual differences (IDs) in cognitive abilities (e.g., working memory) and affective factors (e.g., anxiety) will increasingly affect task-based performance and learning as tasks increase in complexity. (Robinson, 2005, p. 3)

To be specific, Robinson also proposed differential effects of task complexity increased along resource-directing dimensions on monologic and dialogic (interactive) tasks. He proposed that higher complexity will result in greater accuracy and complexity in monologic tasks while it will lead to less syntactic complexity (although greater accuracy and lexical complexity) in interactive tasks. Learners may produce less syntactically complex language in interactive tasks because "greater interaction and interlocutor participation that complex task work encourages may mitigate attempts to produce complex syntax in response to the conceptual and functional demands of the task" (Robinson, 2005, p. 10). He further claims that increased task complexity along resource-directing dimensions can facilitate L2 learning by facilitating interaction, focus on form, and attention to more complex linguistic structures (Robinson, 2001a; 2001b; 2005). Particularly for oral interactive tasks, he suggests that higher task complexity would promote learning of developmentally more advanced forms (Robinson, 2007a, 2007b). In terms of resource-dispersing dimensions, however, Robinson predicts that increased task complexity along resource-dispersing dimensions will lead to both less accuracy and linguistic complexity. Therefore, in order to clearly differentiate the effects of resource-directing variables from resource-dispersing variables, Robinson claims that tasks must be kept simple along resource-dispersing dimensions in order for learners to direct their attentional resources to the linguistic code during task performance.

The present review aims to specifically focus on Robinson's second prediction that increased cognitive demands of tasks along resource-directing dimensions will promote more interaction and negotiation for meaning among learners, generating more learning opportunities and possibly leading to subsequent L2 learning. Based on the interaction approach to second language learning (Long, 1996; Mackey & Gass, 2006), it has been suggested that various interactional features (e.g., negotiation of meaning, recasts, modified output) that learners engage in during interactive tasks would facilitate their L2 learning (Kim, 2009a). In other words, these interactional processes are considered as learning opportunities, which would lead to subsequent L2 development. A number of empirical studies have tested the relationship among increased task complexity, interaction among learners, and L2 learning (e.g., Kim, 2009b; Nuevo, 2006; Kim & Taguchi, 2015). However, these studies revealed inconsistent findings across studies and no research has been conducted to date to synthesize these findings in a systematic manner.

2.5. The Present Study

The present systematic review aims to examine the effects of increasing resource-directing task demands on promoting interaction-driven learning opportunities, and how various learner-related and task-related factors may mediate this effect. The results from a subset of studies are also synthesized in order to examine whether the increase in learning opportunities during learner-learner interaction lead to subsequent L2 development. The following research questions guided the synthesis:

1. How effective is increasing task complexity along resource-directing dimensions in terms of facilitating interaction-driven learning opportunities during learner-learner interaction?

2. Do the following learner-related and task-related features impact the effects of task complexity on promoting interaction differently: (a) types of interactional measures, (b) L2 proficiency, (c) task type, (d) task sequence, (e) task modality?

3. Does increase in interaction lead to L2 learners' subsequent L2 development?

2.6. Method

2.6.1. Literature Search

For this review paper, an extensive search of the literature was carried out by reviewing empirical studies which examined the effect of task complexity on promoting interaction-driven learning opportunities and whether these opportunities led to subsequent language development. Since this review focuses on Robinson's cognition hypothesis framework, articles published between 1995 (Robinson's first publication on cognition hypothesis) and May 2018 (the time of the search process) were searched. The inclusion and exclusion criteria and the search process undertaken during the search followed comprehensive approach to minimize bias in selecting studies and ensure that as many relevant studies as possible are identified (Kugley, Wade, Thomas, Mahood, Jørgensen, Hammerstrøm, & Sathe, 2016). In this section the study's inclusion criteria, search, screening, and coding of studies will be detailed.

2.6.2. Inclusion and Exclusion Criteria

For the present synthesis, explicit inclusion and exclusion criteria were developed based on the research questions regarding the Cognition Hypothesis, specifically Robinson's claim that increasing task complexity along resource-directing dimensions raises the functional demands of communication, with consequences for promoting

interaction-driven learning opportunities and potentially language development. The studies were included when they met all of the below inclusion criteria:

1. The study was published between 1995 and May 2018.
2. The study manipulated task implementation variable as task complexity.
3. Independent variables included at least one manipulation of task complexity along resource-directing dimensions, following Robinson's (2001a) Triadic Componential Framework (e.g., [+/− here-and-now], [+/− few elements], and [+/− reasoning]).
4. Dependent variables involved learner-learner interaction between non-native speaker learners.
5. Learner-learner interaction was measured by using specific interactional measures, such as LREs, recast, uptake, clarification request, confirmation check, and comprehension check.
6. Learners carried out at least one type of interactive task (i.e., dialogic tasks), where learners interacted with other learners (either in groups or pairs) to complete a task.

Studies were excluded if they met any of the below exclusion criteria:

1. The study was a review paper with no new empirical data (e.g., Robinson, 2005, 2007a; Robinson & Gilabert, 2007).
2. The study did not directly investigate the Cognition Hypothesis.
3. The study examined interaction occurring in task-based classrooms without manipulating task complexity (e.g., Payant & Reagan, 2018).

4. The study only examined interaction between native speaker (NS)-learner or researcher-learner, and not interaction between learner-learner (Révész, 2009; Kim, Payant, & Pearson, 2015).
5. The study only included learners' language production or language development as dependent variables without any measures of learner-learner interaction (e.g., Levkina & Gilabert, 2012).
6. The study only measured learner-learner interaction in monologic tasks.
7. The study considered self-repair as a measure of accuracy of learners' language production, rather than a measure of interaction between learners (e.g., Gilabert, 2007).
8. The study examined task complexity as a mediating variable (e.g., Révész, 2007).

2.6.3. Search Process

Initially, studies were searched through four academic databases including Educational Resources Information Center (ERIC-EBSCO), Linguistics and Language Behavior Abstracts (LLBA), PsychINFO, and Education Full Text (H.W. Wilson). Furthermore, ProQuest Dissertations and Theses was searched in order to obtain unpublished dissertation studies and minimize the possible influence of publication bias and "file-drawer" problems (Norris & Ortega, 2000; Li, 2010; Rosenthal, 1979). Although there may be risk of availability bias when seeking out unpublished work (Jackson & Suethanapornkul, 2013), still including them in the search was considered more beneficial in obtaining the maximum coverage of the related studies. Moreover, dissertation studies tend to have high quality, as they need to be approved by the faculty, and also contain

empirical studies with more detailed quantitative and qualitative information (Light and Pillemer, 1984, p. 38, as cited in Jackson & Suethanapornkul, 2013).

The main search terms that guided the search were Cognition Hypothesis and task complexity. These terms were combined with other keywords by using a combination of "AND" or "OR" Boolean operators. The search terms included task-based language teaching (TBLT), task-based instruction, interaction, interaction-driven learning opportunities, language-related episodes (LREs), recast, uptake, clarification request, confirmation check, comprehension check, hypothesis formulation, metalinguistic talk, self-repair, noticing of linguistic deficiency, other repetition (imitation), negotiation of meaning, and pragmatic-related episodes (PREs).

Through the process described above, initially 620 articles were retrieved. After removing the duplicates, the number went down to 464. During the first stage of the screening process, 129 articles were removed based on the examination of the titles and abstracts. Then, full texts of the remaining articles were carefully examined and inclusion and exclusion criteria (described below) were used to further narrow the literature. After considering inclusion and exclusion criteria, 11 articles remained and were included in the study.

As the next step, the reference sections of the included studies were manually checked for further appropriate studies by using the snowball strategy (Greenhalgh & Peacock, 2005). Reference sections of the two review papers of the Cognition hypothesis (i.e., Robinson, 2005; Robinson & Gilabert, 2007) were also examined in order to obtain additional potential empirical studies. Through this process, we obtained 4 additional reports which met all our inclusion criteria. Finally, a total of 15 studies, including 9

journal articles, 3 book chapters, 2 doctoral dissertations, and 1 master's thesis, were included for the present synthesis.

2.6.4. Coding Protocol and Data Analysis

The coding protocol was developed using multiple stages. First, the coding categories were identified based on methodological features of the studies and also referring to previous systematic review papers (e.g., Jackson & Suethanapornkul, 2013). The researcher and one ESL expert with a master's degree in ESL, who had received substantial training in TBLT and research methodology, participated in the coding process. Prior to the coding process, the researcher and the other coder met in person and jointly coded 2 studies, making sure all the variables were coded consistently between the two coders. During this process, several features that were considered not relevant to answering the research questions were eliminated. The final coding scheme is provided in Table 2.1 below. Then, each coder independently coded the included 15 studies. The inter-coder reliability was calculated by comparing the agreement between codes given by the two coders for each variable, and a ratio was calculated by dividing the number of agreed-upon codes by the total number of codes generated for all variables. The coding of the publication characteristics and methodology features reached 100%agreement and the coding of participant characteristics reached 96.7% agreement. Task characteristic features, particularly task condition features, were where there was some disagreement between the coders, resulting in 92% agreement. In terms of measures of interaction and L2 development, agreement reached 100%, as information on these features was directly reported in the original studies. Any disagreements were resolved through multiple discussions until the two coders reached agreement.

Table 2.1 Coding scheme.

Features	Descriptors
PUBLICATION	
Publication year	Year of publication
Publication type	Journal articles/ Book chapters/ Dissertations/ Other
PARTICIPANTS	
L1	Learners' first language
L2	Learners' target second language
Age	Learners' age at the onset of the treatment
L2 proficiency	Learners' initial target language proficiency level & how it was decided (based on standardized tests, institution's independent test results, or other)
METHODOLOGY	
Research setting	FL/ SL
Treatment setting	classroom/laboratory
Treatment length	The number of days when the learners carried out the treatment tasks, excluding days when the participants were taking pretest, posttest, or practice tasks

Table 2.1 Continued

Features	Descriptors
TASK CHARACTERISTICS	
Number of tasks	Number of different task types in each study
Pedagogic task types	Types of the treatment tasks (e.g., decision-making, narrative, and problem-solving tasks)
Task condition	one-way/two way, closed/open, convergent/divergent
Resource-directing dimensions	+/-here and now, +/-few elements, +/-reasoning
Level of complexity for each task	The level of complexity for each task performed (e.g., simple, complex)
MEASURES OF INTERACTION	Measures of interaction used to identify interaction-driven learning opportunities (e.g., LREs, recasts, and negotiation of meaning)
MEASURES L2 DEVELOPMENT	
Linguistic target (if L2 development is measured)	The target linguistic structure that the study aimed to measure

2.7. Findings

2.7.1. Overview of the Articles

This section will present the results regarding the characteristics of the included studies. It will first provide detailed information on the publication characteristics of the included literature, the participants, and the setting. Then, various task features, including

task types, task conditions, and operationalization of task complexity, measures of interaction, and measures of L2 development will be discussed in detail.

2.7.1.1. Publication.

The included studies (n=15) consisted of published journal papers (n=9), book chapters (n=3), doctoral dissertations (n=2), and master's thesis (n=1). By also including unpublished dissertation studies, possible influence of publication bias is reduced. The included articles reported both significant and nonsignificant results, indicating that publication bias was not a big threat to the validity of the present review.

2.7.1.2. Participants and setting.

The participants in the included studies were mostly adults (i.e., 13 studies with adult participants, 2 studies with junior high school students). They spoke a wide range of first languages such as Spanish, Catalan, Korean, Japanese, Chinese, Portuguese, French, Vietnamese, and English. There were five studies which included ESL learners with mixed L1 backgrounds conducted in an English program at a university or a community adult learning center. There were also several instances where the study provided information on the national origins of the participants but did not explicitly provide information on their first language. For example, one study (Kim, 2009a) specified the countries of origin of the participants (i.e., China [n=10], Saudi Arabia [n=17], Colombia [n=2], Taiwan [n=1], Kuwait [n=2], Iran [n=1], and France [n=1]), but did not provide information on their L1. Among the 15 included articles, most of the studies had learners of English as a second or foreign language (n=13) and the other two studies included learners of Spanish as a foreign language.

Regarding the participants' L2 proficiency, about 33.3% of the studies (n=5) did not provide sufficient information on the participants' L2 proficiency. For instance, one study described that the participants' English proficiency was relatively homogeneous (i.e., Gilabert, Barón, & Llanes, 2009) based on the result of " 'industry standard' assessment instruments" (McNeill, 2009, p. 110; i.e., X-lex and Y-lex tests, which are tests of vocabulary size), but did not provide information on their actual level of proficiency. Among the 10 studies, which provided information on the learners' L2 proficiency, 6 of them described their L2 proficiency based on standardized test results (e.g., TOEIC Bridge, TOEFL, CEFR) while 4 of them only provided information based on their institution's proficiency test or placement test results, or the level of the classroom in their institution. Again, among these 10 studies, 3 studies specified their participants' level of proficiency as intermediate and the rest of the studies (n=7) included learners with various proficiency level. Kim (2009a) included two different proficiency levels (low and high) based on paper-based TOEFL score and Riccardi (2014) targeted low and high proficiency learners based on the enrolment status of the participants in their school program.

In terms of research setting, among the 15 studies, 10 studies were conducted in a foreign language setting (in Spain, Japan, South Korea, and USA) and 5 studies were done in a second language setting. About 66.7% of the included studies (n=10) were conducted in a classroom setting while about 33.3% (n=5) were conducted in a laboratory setting. The treatment length of the included studies was relatively short, except for one longitudinal study conducted over one semester (Kim, 2009b). About 46.7% of the studies provided their treatment on a single day (n=7), and the remaining 7 studies provided treatments for several days (2 days [n=3], 3 days [n=3], 5 days [n=1]). As these previous studies show,

there is a need for studies with longer duration of treatment to test the effects of task complexity on learners' interaction over time.

2.7.1.3. Task characteristics.

Across the 15 studies synthesized for this review, a total of 21 tasks were identified. When coding the total number of tasks across these studies, only the task types that the researchers differentiated and included in their analysis as separate task types were included. In addition, when a researcher used different versions of the same task type, it was considered as one task type. For example, Gilabert & Barón (2013) employed two different versions of problem-solving task (i.e., a fire chief task and a party task), and it was coded as one task type (i.e. problem-solving task). Based on this categorization, seven different task types were identified among the 21 task treatments: narrative task (n=7), decision-making task (n=5), information gap map task (n=3), argumentative task (n=1), problem-solving task (n=1), picture difference task (n=2), and collaborative writing task (n=2). In terms of task condition, all the tasks were convergent tasks, where students needed to reach an agreement about a problem, as these types of tasks have been found to elicit more interactional features compared to divergent tasks (Duff, 1986; Pica & Doughty, 1985). Moreover, most of the tasks were two-way (except an instruction-giving map task in Gilabert et al. [2009] and a narrative task in Robinson [2007b]) and closed task (except a problem-solving task in Gilabert and Barón [2013] and a decision-making task in Gilabert et al. [2009]).

Within these 21 treatment tasks, 24 instances of manipulations of task complexity were observed. Among these 24 cases, two cases were not included in the analysis because they did not operationalize task complexity in the resource-directing dimensions suggested

by Robinson (2007a). Robinson (2001b) manipulated a resource-dispersing variable, [+/- prior knowledge], and Kim & Taguchi (2016) operationalized pragmatic demands, not cognitive demands. Among the rest of the 22 manipulations of task complexity in the resource-directing dimensions, there were 13 manipulations of the [+/-reasoning] dimension, eight manipulations of the [+/- few elements] dimensions, and only one manipulation of the [+/-here and now] dimensions.

[+/-reasoning] dimension was used in various task types such as narrative, decision-making, problem-solving, and argumentative tasks. Examples of making a task more complex in the [+/-reasoning] dimension include requiring learners to put the pictures in a correct order and create a story (e.g., Kim, 2009a) or to prioritize and justify their decisions by providing factors that are closely related and dynamic in the task (e.g., Gilabert et al., 2009). [+/- few elements] dimension was often used to differentiate +complex and ++complex task conditions in addition to [+/-reasoning] dimension, rather than used solely as a manipulation variable. For example, in Kim (2012), [+/-reasoning] demands were used to differentiate simple task from +complex and ++complex task versions by requiring learners in the +complex and ++complex group to make a decision while the participants in the simple group were only required to exchange information. Then, the +complex and the ++complex group were differentiated by differentiating the number of considerations for making a decision (two vs. four considerations that should be met for their decision). In the case of [+/- here and now] dimension, it was used only once in a narrative task where the students in the [+ here and now] condition were asked to narrate the story in the present tense with contextual support (picture strips) while the participants in the [- here and now] were required to narrate the story in the past tense and

without the contextual support. Lastly, about 85.7% of the tasks (n=18) only included two levels of task complexity (i.e., simple and complex) and only three tasks (14.3%) included three levels of task complexity.

2.7.1.4. Measures of interaction.

The included studies used various interactional measures to identify interaction-driven L2 learning opportunities. A total of 15 types of interactional measures were identified across the literature following the classification used in the included studies (i.e., LREs [n=8], confirmation check [n=5], clarification request [n=5], comprehension check [n=2], recasts [n=3], self-repairs [n=3], uptake of pre-modified input [n=1], hypothesis formulation [n=1], metalinguistic talk [n=2], noticing of linguistic deficiency [n=1], other repetition [n=1], modified output [n=1], pushed output [n=1], pragmatic moves [n=1], and PREs [n=2]). However, categorization of these interactional features differed among the included studies, making it difficult to generalize the possible effects of task complexity on each interactional feature. Some researchers distinguished negotiation of meaning (i.e., confirmation checks, clarification requests, and comprehension checks prompted by a break in communication) from LREs (i.e., "any part of a dialogue in which students talk about the language that they are producing, question their language use, or other- or self-correct", Swain & Lapkin, 1998, p. 70), following Swain & Lapkin (1995, 1998) who did not consider learner exchanges that had no potential in directing attention to code-related problems as LREs. In their studies, only interactional features triggered by code-related problems without any communication breakdowns were considered as LREs (e.g., Gilabert et al., 2009; Kim, 2009a). On the other hand, other researchers considered these interactional features to be subcategories of LREs. For example, Révész (2011) regarded

confirmation checks, clarification requests, recasts, and metalinguistic talk as different features of LREs and then further coded LREs in terms of whether they were generated by a break in communication or a linguistic issue in the absence of an obvious comprehensibility problem.

Among the 15 types of interactional features, LREs were the most frequent measure (n=8), and LREs were used as the unit of analysis for identifying learning opportunities during task performance in six studies. These studies which included LREs as an interactional measure further coded them for: (a) sources of LREs (e.g., whether they were generated by a communication breakdown or a linguistic issue [Révész, 2011]); (b) types of LREs (e.g., lexical versus grammatical LREs [Kim, 2009a; Riccardi, 2014], interactive LREs versus self-corrections [Riccardi, 2014], and LREs involving developmentally advanced target forms [Kim, 2009b]); or (c) resolution of LREs (e.g., correctly resolved, incorrectly resolved, and unresolved [Kim, 2009a]). In one study (i.e., Révész, 2011), LREs were identified first and then exchanges contained in the LREs were further coded in terms of other interactional features including confirmation checks, clarification requests, recasts, and metalinguistic talk. On the other hand, one study (i.e., Gilabert at al., 2009) identified LREs along with other interactional measures (e.g., negotiation of meaning, recasts), only including interactional features triggered by code-related problems in the absence of communication breakdowns in LREs.

Another small group of studies (n=3) examined pragmatic moves (Gilabert & Barón, 2013) and pragmatic-related episodes (PREs, Kim & Taguchi, 2015; 2016) as measures of interaction-driven learning opportunities. In Gilabert and Barón (2013), pragmatic moves of requests and suggestions were identified, and the number and types of

each pragmatic move were coded. The other two studies both used pragmatic-related episodes (PREs) as measures of interaction-driven learning opportunities and they were further coded for pragmatic targets (sociopragmatic factors and pragmalinguistic forms). They adopted Swain and Lapkin's (1998) definition of LREs, and defined PREs as "any discussions on, questions about, or corrections of pragmatic-related language production (Kim & Taguchi, 2015, p. 664).

Lastly, in terms of reporting standards, about 86.7% of the studies (n=13) reported coder reliability for interactional measures. Two studies (13.3%) did not report the coding reliability. Most of the studies used percentage agreement (n=8), four studies used Cohen's kappa, and one study used correlation coefficient to report coder reliability.

2.7.1.5. Measures of L2 development.

In addition to measuring the effects of task complexity on interaction-driven learning opportunities, 40% of the studies (n=6) further investigated whether these learning opportunities actually led to L2 development. These studies examined several different target linguistic forms as a measure of L2 development. The target linguistic forms included past-tense (n=4), question development (n=2), locative prepositions (n=2), and speech act of request (n=1).

2.7.2. Task Complexity and Interaction-driven Learning Opportunities

The 15 articles included in the study have measured interaction-driven learning opportunities by using various interactional features, such as negotiation of meaning, recasts, LREs, as well as PREs. The results of these studies have generally supported Robinson's hypothesis in terms of more complex tasks generating more interaction among learners (e.g., Robinson, 2001b, 2007b; Kim, 2009b; Kim, 2012; Révész, 2011). Robinson

(2001b) was the first study that explored whether increasing task complexity has an effect on learner-learner interaction. [+/-prior knowledge] and [+/-few elements] variables were manipulated to create two versions of direction-giving map tasks (i.e., simple and complex). The results revealed that in the complex version of the task, learners produced a significantly higher number of confirmation checks and a relatively larger number of clarification requests compared to the learners in the simple version of the task. Similarly, Robinson (2007b) later found that the complex version of the narrative task generated the greatest number of clarification requests and confirmation checks among three different levels of task complexity (i.e., simple, medium, and complex). There was a statistically significant difference in the number of these interactional features among three levels of task complexity as well as in the number of turns across the three tasks in the direction of more complex tasks generating more interaction and uptake compared to simpler ones. In her dissertation study, Kim (2009b) also differentiated three levels of task complexity (i.e., simple, +complex, ++complex) by manipulating [+/-reasoning demand] and [+/-few elements] dimensions, discovering that more complex tasks promoted significantly higher number of LREs related to specific linguistic forms (i.e., questions and past-tense) compared to simpler versions. Furthermore, the learners in the ++complex group produced significantly larger number of LREs involving developmentally advanced question and past-tense forms compared to the other two groups (i.e., simple and +complex group).

However, a number of studies have found conflicting findings regarding the role of task complexity in generating more interaction-driven learning opportunities based on their categorization of interactional measures and various learner-related or task-related variables, making it difficult to reach clear understanding about the effectiveness of task

complexity on promoting more learning opportunities during task performance. Findings related to the possible mediating roles of these variables on the relationship between task complexity and learner-learner interaction will be discussed in the following section.

2.7.2.1. Types of interactional measures.

Review of the previous literature revealed that findings related to the amount of learning opportunities occurred during task performance could vary to a significant degree depending on which type of interactional measures that researchers used to identify learning opportunities and how the interactional measures were categorized. A number of studies (e.g., Gilabert et al., 2009; Nuevo, 2006; Révész, 2011) included several different interactional measures (up to nine measures in a single study) in their study to identify learning opportunities and found mixed results across different measures. For example, Nuevo (2006) included nine different measures to identify interaction-driven learning opportunities (i.e., recasts, clarification requests, confirmation checks, comprehension checks, hypothesis formulation, metalinguistic talk, self-repair, noticing of linguistic deficiency, and other repetition) and found significantly higher number of hypothesis formulation in the complex version of the narrative task only (not in the complex version of the decision-making task). On the other hand, some measures including recasts, comprehension checks, and other-repetitions were produced significantly more in the simple task versions and no significant difference was found between the two groups on the rest of the measures.

Overall, some interactional features showed relatively consistent results across studies. For example, repair was found to occur significantly more in complex tasks (e.g., Gilabert et. al., 2009) while the amount of recast tended to have no difference between

more complex and simpler tasks (e.g., Gilabert et al., 2009; Révész, 2011; Solon, Long, & Gurzynski-Weiss, 2017). On the other hand, other interactional features revealed inconsistent results across studies. For instance, in terms of confirmation checks and clarification requests, Révész (2011) found no statistically significant group difference while Robinson (2001b, 2007b) found higher number of confirmation checks and clarification requests in the complex version of task.

In terms of LREs, conflicting findings were revealed depending on how the researchers categorized interactional features. Several studies, which coded other interactional features (e.g., negotiation of meaning, recasts, metalinguistic talk) as subcategories of LREs, found significantly higher number of LREs in more complex tasks (e.g., Révész, 2011; Kim, 2009b, 2012). On the other hand, no statistically significant difference in the number of LREs between simple and complex groups was found in some studies where LREs were coded as only including interactional features triggered by code-related problems (e.g., lexical and grammatical) without meaning negotiation (e.g., Solon, Long, & Gurzynski-Weiss, 2017). Another study which identified LREs as measures of interaction (Kim, 2009a) found mixed results depending on other variables including task type and learners' L2 proficiency, which will be discussed in the following sections.

2.7.2.2. Learners' L2 proficiency.

Another group of studies explored to what extent learner-related variables (i.e., L2 learners' proficiency) influence the relationship between task complexity and the occurrence of interaction-driven learning opportunities. Kim (2009a) explored the effect of learner proficiency by including learners with two different proficiency levels (i.e., low and high) in her study. The participants were 34 ESL students with various L1

backgrounds, enrolled in an Intensive English Program at a US university. They were grouped into low and high L2 proficiency level based on two different criteria: their enrollment status in the program (however, information on their enrollment status was not provided) and their scores on paper-based Test of English as a Foreign Language (TOEFL). The learners with TOEFL score between 340 and 420 were identified as low proficiency, and those with scores between 440 and 490 were identified as high proficiency. Both group of learners carried out two types of tasks (i.e., picture narration and picture difference tasks) with two levels of task complexity (i.e., simple and complex). In the picture narration tasks, Robinson's hypothesis was confirmed with the high proficiency learners, but the opposite was found for the low proficiency learners. To be specific, low proficiency learners produced significantly more LREs during the simple version compared to the complex version while the high proficiency learners produced significantly more LREs when they performed the complex picture narration than the simple picture narration task. In the picture difference tasks, the low proficiency learners produced more LREs during the complex version, confirming Robinson's hypothesis, while no significant difference was found for high proficiency learners between the simple and the complex version.

Findings of a replication study of Kim (2009a) conducted by Riccardi (2014) partially confirmed her findings in terms of low proficiency learners' performance in the picture narration task (more LREs during the simple version) and the high proficiency learners' performance in the picture difference task (no significant difference in the simple and the complex version). Contrary to Kim's findings, no significant differences in the amount of LREs were found for high proficiency learners during the simple and the

complex version of the picture narration task as well as for the low proficiency learners during the simple and the complex version of the picture difference task. The participants in Riccardi (2014) were 32 ESL students in an intensive university English program in Canada and the low and high proficiency learners were categorized based on the participants' enrollment status in the institution's English program. The low proficiency learners were in the beginner or low intermediate classes and the high proficiency learners were from either high intermediate or advanced classes. It is important to note that the different findings between the two studies might be due to different proficiency levels of the participants as Riccardi (2014) categorized their participants into two proficiency groups only based on the enrollment status in their own language program. In sum, these results imply that learners with different proficiency level may engage in different amounts of interaction when they are performing different types of tasks. In other words, the effects of task complexity may not only differ across proficiency levels but also across different task types, which will later be discussed in the next section.

In addition to examining the effect of individual learner proficiency, another study (Kim, 2009b) further explored the role of one of the task condition variables (i.e., pair grouping) based on L2 proficiency by including three types of pair grouping (i.e., low-low, low-high, high-high). Among these three pair groups, the high-high pairs produced the most amount of LREs and the low-high and low-low pairs produced similar amount of LREs. Moreover, the high-high pairs were able to resolve significantly larger number of LREs related to developmentally advanced question forms, followed by low-high and low-low proficiency group. Overall, the results of the study revealed that the learners engaged in larger number of interaction-driven learning opportunities when working with advanced

level proficiency learners. However, more studies are needed to reach more conclusive findings on this topic.

2.7.2.3. Task type.

As briefly mentioned in the previous section, task type is another task-related variable that several studies (e.g., Gilabert et al., 2009; Kim, 2009a; Nuevo, 2006; Nuevo et al., 2011) explored to see whether the effect of task complexity on promoting interaction-driven learning opportunities would vary in different types of tasks. The findings of previous studies have generally confirmed that the amount of learning opportunities generated by different levels of task complexity does differ across different task types. For example, Gilabert et al. (2009) used three different pedagogic task types (i.e., narrative reconstruction, decision-making, and instruction-giving map task), which differed in various task conditions (narrative reconstruction tasks: two-way, closed, convergent, decision-making tasks: two-way, open, convergent, and instruction-giving map task: one-way, closed, convergent). Each task included two levels of task complexity by manipulating [+/-here and now], [+/-causal reasoning], and [+/-few elements] dimension, respectively. Their findings revealed that the number of interactional features such as confirmation checks, repairs, and LREs were higher in the complex versions of the narrative and instruction giving map task, but not in the complex decision-making task. In the complex narrative task, learners produced significantly more clarification requests but significantly less comprehension checks while in the complex instruction giving map task, learners produced significantly more comprehension checks. In the complex version of the decision-making task, there were only significantly more repairs and no significant

difference in the amount of other interactional measures between the simple and complex group.

However, even the same type of tasks did not show any clear-cut pattern in terms of task complexity generating more interaction-driven learning opportunities. For example, Nuevo (2006) and Nuevo et al. (2011) explored two different tasks types (i.e., narrative and decision-making tasks). Similar to the results in the narrative task in Gilabert et al. (2009), the simple version of the narrative task in Nuevo's (2006) study generated significantly more comprehension checks in addition to recasts, and other-repetitions. The simple version of the narrative task also showed a trend for more uptake of recasts. In the narrative tasks in Nuevo et al. (2011), which targeted past tense, the simple task generated significantly more pushed output than the complex task, revealing conflicting findings toward Robinson's hypothesis. In the two versions of decision-making tasks (i.e., simple vs. complex), the complex and the simple group produced similar amounts of modified output in Nuevo et al.'s (2011) study while the simple task group in Nuevo (2006) produced significantly more uptake of recasts, comprehension checks, and other-repetition, and a trend toward more metalinguistic talk compared to the complex group.

In sum, previous studies were unable to provide conclusive findings regarding the relationship between task complexity and occurrence of interaction-driven learning opportunities during task performance. These findings suggest that other task-related variables (e.g., specific linguistic targets that the tasks are designed to elicit, interactional features used to identify interaction-driven learning opportunities) in addition to task complexity should be considered when designing studies on task complexity (Kim, 2012).

2.7.2.4. Sequence of tasks.

Some research studies investigated the most effective way to sequence pedagogic tasks with differing levels of cognitive complexity. Among the 14 included studies, only one study (i.e., Baralt, 2014) explored task sequencing variable. In his proposal, Robinson (2010) proposed his SSARC model for how to design and sequence pedagogic tasks in the classroom and his main argument was that pedagogic tasks should be sequenced in the order of increasing their cognitive complexity in order to maximize language learning. To be specific, the SSARC model suggests that learners should first be given tasks that are cognitively simple on all accounts; then tasks that are made more complex along resource-dispersing dimension; then finally tasks designed as complex as possible by manipulating resource-directing variables in order to promote form-meaning connections (Robinson, 2010). Baralt (2014) aimed to test the possible differential effects of various task sequences based on their cognitive complexity in two different modes (i.e., traditional face-to-face setting and online language learning setting) by including four different sequences: (1) simple, simple, complex (SSC), (2) complex, complex, simple (CCS), (3) complex, simple, complex (CSC), and (4) simple, complex, simple (SCS). The learners of Spanish as a foreign language in each FTF and online classrooms were divided into four groups and each group carried out four different task sequences. The participants carried out story retell tasks with a partner, and LREs involving the target linguistic term (i.e., past subjunctive) were identified as measures of learner-learner interaction. The results in the FTF mode revealed that the students who followed the CCS and the CSC task sequences produced significantly more LREs than students who performed the SSC or the SCS sequences, with no statistical differences between the CCS and CSC sequences, and also

between the SSC and SCS sequences. In other words, learners produced significantly higher number of LREs when they were given opportunities to complete a higher number of complex tasks, which confirms Robinson's hypothesis in terms of more complex tasks generating more interaction-driven learning opportunities. However, the study findings did not show any effect of a specific task sequence based on cognitive complexity. Therefore, there is a need for more research on how to sequence tasks with differing cognitive complexity to promote more interaction between learners.

2.7.2.5. Task Modality.

Although none of the previous studies have examined the effect of task complexity on promoting interactional-driven learning opportunities in different task modes, several studies compared the relationship between task complexity and L2 learning in face to face setting (FTF) and online setting (Baralt, 2010), and the impact of task complexity on feedback efficacy during interaction in the two modes (Baralt, 2013). The results of these studies suggested that task complexity effect on interaction and L2 learning is more evident in FTF mode than in online environment (Baralt, 2010, 2013).

Among the included studies, there was one study (i.e., Baralt, 2014) that compared the effects of sequencing tasks with differing levels of cognitive complexity on learner-learner interaction in two different modalities (i.e., FTF vs. online). For online environment, she particularly focused on synchronous computer-mediated communication (SCMC), which refers to "a real-time written conversation over the Internet," by using SCMC chat (Baralt, 2014, p. 98). The learners in the traditional classes (FTF mode) carried out the story retell tasks in person with a partner, while the learners in the online mode completed all the tasks online via SCMC chat with a partner. Both group of learners

carried out the tasks in four different sequences (i.e., SSC, CCS, CSC, and SCS), and the number of LREs (only LREs targeting the Spanish past subjunctive) were used as measures of learning opportunities (as described in the previous section). The results showed that the learners in the traditional classes who carried out the sequences with a greater number of complex tasks (i.e., CCS and CSC) produced significantly larger number of LREs than those who completed the sequences with a greater number of simple tasks (i.e., SSC and SCS). However, surprisingly the learners in the online classes did not produce any LREs (not a single LRE) regardless of the task sequence order. Baralt (2014) pointed out several factors that could have affected this result, such as characteristics of SCMC chat (i.e., delayed turn-taking), participants set-up (i.e., learners paired with other learners with similar L2 proficiency), and the linguistic target of the study (i.e., the linguistic target having very low saliency and not having a functional need for using the specific form). In sum, these findings suggest that task modality (FTF vs. online) may also have a significant impact on learner-learner interaction during task performance, calling for more task complexity research in online language learning environments.

2.7.3. Task Complexity, Learning Opportunities, L2 Learning

As other researchers have pointed out, learning opportunities are not necessarily a direct indicator of subsequent L2 linguistic development (Kim, 2009b, 2012; Nuevo, 2006), and thus, independent measures of L2 learning should be used in order to find out whether these learning opportunities actually led to L2 development (Philp, Oliver, & Mackey, 2006). A subset of the studies (n=6) included in the current review further examined whether the increased amount of interaction-driven learning opportunities during complex task performance led to actual language learning. Generally, the included studies

have found positive evidence for the prediction of the cognition hypothesis regarding the relationship among task complexity, the number of interactional features, and their subsequent L2 development. To be more specific, four of the six included studies found a positive relationship between interaction-driven learning opportunities facilitated by increased cognitive complexity and learners' L2 development. For example, Kim (2009b, 2012) examined whether tasks with increased cognitive complexity in [+/-reasoning demand] and [+/-few elements] dimensions would promote larger amount of LREs targeting specific linguistic features (i.e., question and past-tense), and further linguistic development. In both studies, the results demonstrated that the most complex task group (i.e., ++complex) produced the greatest number of LREs related to the target form (particularly those involving developmentally advanced question structures), and also more L2 development, as measured by oral production tests (Kim, 2012) and both oral production tests and metalinguistic tests (Kim, 2009b).

Another study (Kim & Taguchi, 2015) specifically examined the relationship between task complexity, number of pragmatic-related episodes (targeting requests), and development of request-making expressions. The participants' learning of request-making expressions was measured by written DCT, and the number of pragmatic-related episodes (PREs) were used as measures of interaction-driven learning opportunities during task performance. In terms of interaction-driven learning opportunities, the complex group produced significantly more PREs targeting contextual features, head acts, and preparators than the simple group. Evidence of learning from these learning opportunities was shown in the immediate posttest (compared to the control group) but no significant difference was found between the simple and the complex group. However, the results of the delayed

posttest revealed that only the complex group maintained their learning even one month after the task treatment, confirming the Cognition Hypothesis that tasks with higher cognitive complexity may promote longer retention of the target forms.

Moreover, one study (i.e., Baralt, 2014) explored the effects of sequencing tasks with differing cognitive complexity on promoting interaction and further linguistic development, and found that the task sequences involving higher number of complex tasks were more effective in promoting more interaction and L2 learning compared to those involving larger number of simple tasks. In this study, L2 development was determined by learners' use of the past subjunctive on the oral and written production tasks (i.e., pretest, posttest 1, posttest 2) and the results demonstrated that the students who completed the CCS or CSC task sequences used the Spanish past subjunctive statistically more than those who completed the SSC or SCS task sequences. In the online setting, however, no use of the subjunctive form was observed in any of the assessments. Moreover, there were no statistical differences in learners' scores between the two sequences including two complex tasks and one simple task (i.e., CCS and CSC), indicating that the task sequencing order may not lead to differential learning. Rather, sequences including greater number of complex tasks resulted in more L2 development of the target structure. These results generally confirm that carrying out tasks with higher cognitive complexity generates more interaction-driven learning opportunities and leads to more L2 learning.

On the other hand, there were two studies (Nuevo, 2006; Nuevo et. al., 2011) which found limited evidence of higher task complexity leading to more interactional features and subsequent L2 development. Nuevo (2006) found mixed results across nine different interactional measures. Hypothesis formulation was the only measure that confirmed more

complex tasks generated more interaction-driven learning opportunities. In terms of L2 development, learning of the two target structures (i.e., past-tense and locative prepositions) were measured through an oral production test and a grammaticality judgment test. Past-tense performance measures did not show significant difference in the two tests between the treatment groups (i.e., the simple and the complex group) and the control group. Regarding learning of locative prepositions, the high complexity group significantly outperformed the control group in the oral production test, but the simple task group did not. Interestingly, the simple group used a wide range of interactional features (including recasts, comprehension checks, and other-repetitions), and had the highest gains on the grammaticality judgment test of the locatives.

The findings of Nuevo et al.'s (2011) study show a complex picture in terms of the relationship between the amount of modified output and learning of locatives and past tense in two different task types (i.e., narrative and decision-making tasks). In their study, modified output was divided into two general categories: individual modifications (i.e., self-repair) and collaborative modifications (i.e., pushed output). Overall, high task complexity did not increase production of modified output (a total including both self-repair and pushed output) during task performance, and only the amount of self-repair for locatives was found to be significantly increased by high task complexity. Moreover, their findings of the relationship between interactional modifications and learning measured by gain scores for both locatives and past tense revealed an intricate pattern. Self-repair was associated with learning of locatives in high complexity decision-making tasks. On the other hand, pushed output and the total modified output were related to learning of past tense only in low complexity narrative tasks. Nuevo and the colleagues (2011) suggested

that different types of modified output (e.g., self-repair, pushed output) may not be equally beneficial for facilitating learning under various task complexity conditions. More studies are needed to find which types of modified output may be more effective in promoting learning in different task complexity levels.

2.8. Discussion

In this section, findings from the current synthesis will be discussed in relation to the research questions proposed at the onset of this review paper. Methodological issues which need to be considered when interpreting the findings of this synthesized review will also be discussed in addition to pedagogic implications from the study.

2.8.1. Task Complexity and Interaction-driven Learning Opportunities

Review of previous research on task complexity and interaction-driven learning opportunities has revealed that Robinson's hypothesis is generally supported in terms of higher task complexity promoting more interaction among learners. However, several studies found inconsistent results possibly influenced by the types of interactional measures used to identify learning opportunities and the way these interactional features are categorized in each study. Some (e.g., Révész, 2011) coded various interactional features (e.g., confirmation checks, clarification requests, recasts, metalinguistic talk) as subcategories of LREs and LREs included negotiation of moves (i.e., clarification requests, confirmation checks, comprehension checks). Others (e.g., Gilabert et al., 2009), on the other hand, distinguished negotiation of meaning from LREs, only including interactional features triggered by code-related problems without communication breakdowns as LREs. In these studies, learner exchanges that had no potential in directing attention to code-related problems were not considered as LREs (Swain & Lapkin, 1995, 1998). As

researchers have categorized these interactional features in somewhat different ways, it may not be sufficient to simply compare the frequency of interactional features occurred during tasks with differing task complexity to identify interaction-driven learning opportunities during task performance. In addition to these quantitative methods, more studies need to investigate quality of learning opportunities (Kim & Taguchi, 2016). For example, Kim & Taguchi (2016) measured length of turns for each pragmatic-related episodes (PREs) in addition to frequency of PREs. Kim (2009a) also included the resolution of the language-related episodes (LREs) in addition to the number of occurrences by identifying whether they are correctly resolved, unresolved, or incorrectly resolved, following Swain (1998) and Leeser (2004). By considering the quality of these learning opportunities in addition to their quantity, these studies could provide richer information on the role of task complexity in generating larger number of and also more meaningful learning opportunities, which may result in L2 learning.

Furthermore, previous studies have considered other learner-related variables (e.g., L2 proficiency, pair grouping) and task-related variables (e.g., task type, task modality, task sequence) when examining the relationship between the level of task complexity and interaction-driven learning opportunities during task performance. For example, Kim (2009a) examined the mediating role of learners' L2 proficiency and her findings revealed that different proficiency learners would engage in interaction differently across different task types. For the picture difference task, the low proficiency learners generated significantly more LREs during the complex version (-few elements) while the high proficiency learners produced similar amount of LREs in the two complexity versions. On the other hand, for the picture narration task, the low proficiency learners produced more

LREs in the simple version (-reasoning) while the high proficiency learners produced more LREs in the complex version (+reasoning). These findings may indicate that certain types of tasks may be more appropriate for learners with certain level of proficiency in either simpler or more complex version. It is possible that for low proficiency learners the complex version of the picture narration task which required them to put the eight pictures in order and create a story (increased in the [+reasoning] dimension), was too demanding to engage in active interaction with their partner. On the other hand, the complex version of the picture difference task, which required them to describe a greater number of elements shown in the picture [-few elements], could have naturally facilitated more interaction among low proficiency learners as they were given more number of elements that they needed to discuss. However, as the findings of the replication study of Kim (2009a) by Riccardi (2014) only partially confirmed her findings, it is still unclear how learners' L2 proficiency may mediate learner-learner interaction in tasks with differing cognitive complexity.

In terms of pair grouping based on learners' L2 proficiency, Kim (2009b) found that the high proficiency pairs (high-high) produced a significantly larger amount of LREs and were also able to resolve more LREs with developmentally advanced target structure (i.e., questions) compared to the high proficiency learners paired with low proficiency learners (low-high) and the low proficiency pairs (low-low). This result is partially in line with previous interaction studies on the role of pair grouping based on learners' L2 proficiency, which found that learners generally produce a larger number of learning opportunities (e.g., LREs) as their proficiency increases (e.g., Leeser, 2004; Kim & McDonough, 2008; Williams, 1999, 2001). However, some interactional studies (e.g.,

Iwashita, 2001) found that learners produce more interactional features when they are paired with different proficiency learners (low-high) compared to when they are paired with the same level proficiency peer.

Among various task-related variables (e.g., task type, task sequence, and task modality), task type was the most investigated variable (e.g., Gilabert et al., 2009; Kim, 2009a; Nuevo, 2006; Nuevo et al., 2011). Although these studies have revealed that the amount of learning opportunities generated by different levels of task complexity does differ across different task types, no clear cut pattern was found across task types and the same type of tasks did not show consistent pattern in terms of the relationship between task complexity and interaction-driven learning opportunities. However, some researchers have claimed that tasks that require higher precision during the process of transferring information may promote larger amount of interaction among learners as they increase the need to clarify and confirm whether the information was delivered correctly (Gilabert et al., 2009). For example, Gilabert and his colleagues (2009) found the highest number of clarification requests and comprehension checks in the instruction-giving map task compared to the narration and decision-making tasks. During the map task, the participants had to give directions based on a city map with marked routes to their partner, who did not have the route marked on the same map. Both the speaker and the listener had to engage in multiple interactional processes to make sure the listener is following the route correctly. Overall, research findings have not revealed a consistent and clear results on the role of task complexity in promoting learning opportunities in interactional contexts and how various task and learner-related variables may play a role in this relationship. Therefore,

more studies are needed in order to examine possible interactions of task complexity with other variables.

In addition to the possible mediating role of task- and learner-related variables, it has been suggested that various methodological issues may have influenced these mixed findings. First of all, difference in operationalizations of task complexity variables across different studies has been pointed out by several researchers (e.g., Jackson & Suethanapornkul, 2013; Kim, 2009b; Révész, 2007; Sasayama, 2016). Some variables, such as the number of elements (+/-few elements) and the level of reasoning that a task requires (+/-reasoning), are not operationalized consistently and similarly across different studies. When manipulating task complexity along [+/-few elements] dimension, previous research has not clearly specified how many elements in a task would make the task to be considered more cognitively demanding [-few elements] and how few elements are less cognitively demanding [+few elements]. For example, in Kim (2009b, 2012), the [+few element] condition of the decision-making task provided two considerations that needed to be met for making a decision while the [-few element] condition required four considerations. In Solon, Long, & Gurzynski-Weiss's (2017) study, however, the simple map task (+few element) included seven stops in total with fewer extraneous elements while the complex version (-few element) included 11 stops in total with many more streets and additional landmarks on the map. On the other hand, some studies (e.g., Kim, 2009a) did not specify the precise number of elements that they included in each task, describing the tasks as having "fewer" or "more" elements.

In terms of operationalizing [+/-reasoning] dimension, most of the studies have not distinguished among three types of reasoning (i.e., spatial, causal, and intentional

reasoning) proposed by Robinson and Gilabert (2007), and even among the studies that made a distinction among these three types of reasoning, their manipulation of this dimension was not consistent. For example, Robinson (2007b) used [+/-intentional reasoning] dimension to create three levels of narrative tasks (i.e., simple, medium, complex), and the participants were required to decide on the correct sequence for the given pictures and then narrate the story to their partner who had to put the pictures in the correct order in the order that their partner described. In the simple version, participants had to think about the intention of a single character in the picture, while learners in the complex version had to reason about the intentions of multiple characters. In other words, [+/-intentional reasoning] variable was manipulated along a continuum, with learners in the simple group engaged in relatively less amount of intentional reasoning while those in the more complex groups engaged in relatively more intentional reasoning. On the other hand, Baralt (2014) manipulated this variable by not including it in the cognitively simple version and including it in the cognitively complex version. In the simple version of the story retell task, the characters' intentional reasons (e.g., emotions, mental states) were directly provided so that the participants could simply retell the story without making any inferences about the intentions of the characters. In the complex version, however, there was no information about the intentions of the characters, so the learners had to infer the reasons behind the actions of the characters. In sum, it is clear that these different manipulations could have differential impact on generating learning-opportunities and also subsequent L2 learning, which need to be carefully examined in future studies.

Another methodological issue pointed out by several researchers is that various task complexity variables can be applied to describe the same set of tasks (e.g., simple and

complex versions of the same task, e.g., Kim, 2009b; Révész, 2007). For instance, narrative tasks were widely used within task complexity research and previous researchers (e.g., Gilabert et al., 2009) often operationalized [+/-Here-and-Now] dimension along resource-directing dimensions to create two narrative tasks with different levels of cognitive complexity (i.e., simple, complex), following Robinson's (1995) operationalization. In the simple version, learners are given a set of picture strips and asked to narrate the story in the present while looking at the strips (+Here-and-Now). In the complex version, however, they are required to narrate the story in the past without the pictures in front of them (-Here-and-Now). The problem here is that other resource-dispersing variables, such as [+/-contextual support] and [+/-single task], could also be applied to explain this same set of tasks. Some researchers (e.g., Kim, 2009a; Robinson, 2007b) also manipulated [+/-reasoning] dimension to create two different versions of a narrative task (i.e., simple, complex), where the participants have to narrate the pictures based on ordered pictures in the simple version (-reasoning) while they are given a set of unordered pictures and narrate the story based on the order they think is correct (+reasoning). This same task, however, could also be interpreted using [+/-single task] variable in the resource-dispersing dimension as the simple version requires only one step in the task (+single task) while the complex version requires learners to complete two tasks (i.e., order the pictures and narrate the story) within one task. As these tasks can be interpreted in both resource-directing and resource-dispersing dimensions, it is unknown whether the results of engaging in these tasks is caused by increased cognitive complexity in either the resource-directing or resource-dispersing dimension, or both. It also indicates that these task complexity variables are not manipulated according to Robinson's criteria.

Based on Robinson's framework, tasks must be kept simple along resource-dispersing dimensions so that the effects of resource-directing variables can be clearly differentiated from those of resource-dispersing variables and the learners can efficiently allocate their attention to linguistic features to facilitate L2 learning.

Another possible reason may be related to the validity of the designed level of task complexity for each task. In other words, it is possible that the simple and complex tasks that the researcher designed to be simpler and more complex are not very distinct from each other, which could pose a significant threat to the validity of the key independent variable (Sasayama, 2016). Due to this issue, several researchers have argued for clear need for independent measures of task complexity (Norris, 2010, Sasayama, 2016) in the task complexity research. Among the 15 included studies, more than half of the studies (n=8) did not include any independent measures of task complexity and only validated their task design through pilot study results. Even the studies (n=6), which measured cognitive task complexity (about 67%), only included some type of subjective self-reporting system to measure the cognitive task complexity of each task. This is in line with the findings from the previous synthesis paper by Sasayama, Malicka, and Norris (2015), which revealed that only about 18% of the 129 studies of L2 task complexity included any types of independent measures of cognitive task complexity. Particularly, their findings revealed that the majority of these studies used subjective, self-assessment ratings of perceived task difficulty or mental effort (Sasayama, 2016). Robinson (2001b) was one of the first studies to use independent measure of task complexity, followed by later studies (e.g., Gilabert et al., 2009; Kim, 2009a; Robinson, 2007b). In a self-perception questionnaire, the participants were asked to rate their perceived levels of task difficulty,

stress, confidence, interest, and motivation using 9-point Likert scales. However, as Sasayama (2016) pointed out, strictly speaking this measure of task complexity could be measuring the construct of task difficulty rather than task complexity, which "is claimed to be inherent in the task design and distinct from participants' perceptions" (p. 235). As discussed in the previous sections, Robinson proposed in his Triadic Componential Framework that task complexity variables should be clearly distinguished from task difficulty variables, which refer to learners' perception of the demands of the task. Therefore, other more direct and objective measures of cognitive complexity of a task is recommended, such as dual-task and time-estimation method motivated by the techniques used in the field of cognitive psychology, or at least some kinds of triangulation is needed when measuring this construct (Sasayama, 2016). A good example is in Gilabert and Barón (2013)'s study where they used learners' perception questionnaire, time on task, and time-estimation method. Based on these three measures, they confirmed that the complex versions of the two tasks (i.e., fire chief task and party task) have higher cognitive complexity than the simple versions of each task. The learners reported the complex tasks were more difficult than the simple versions in their perception questionnaire, took significantly longer time to complete the complex tasks (which is an indirect indication of the complex task demanding higher cognitive load), and were less accurate about their estimated time of the tasks in the complex tasks. Future studies examining the effect of task complexity should therefore include valid measures of task complexity when designing tasks in order to accurately examine the effects of task complexity.

2.8.2. Task Complexity, Learning Opportunities, L2 Learning

Second language acquisition studies on task-based language learning have shown that engaging in various interactional processes can facilitate L2 learning by providing learners with opportunities to make form-meaning connections and practice producing more target-like output while receiving corrective feedback (Mackey, 2007, p. 88). Particularly some interactional features, such as LREs, have revealed positive correlations with L2 learning (Gass & Mackey, 2007; Kim, 2009a). However, there have been small number of studies which explored the relationship between these two constructs in relation to task complexity. Moreover, it has been generally agreed that more cognitively complex tasks facilitate more interaction-driven learning opportunities but whether these learning opportunities actually lead to L2 development has not been widely explored. In the present synthesis of research, only 6 among 15 included studies (i.e., Baralt, 2014; Kim, 2009b, 2012; Kim & Taguchi, 2015; Nuevo, 2006; Nuevo et al., 2011) examined the relationship among these three constructs. The results generally confirmed the positive relationship among task complexity, the number of interactional features, and further L2 learning.

However, it is important to note that in several studies effects of task complexity on L2 learning were only shown in the delayed post-tests, but not in the immediate post-test. In Nuevo et al. (2011), for example, overall the relationship between interaction-driven learning opportunities (i.e., modified output including self-repair and pushed output) and learning (of locatives and past tense) was only found in the delayed post-test scores. To be specific, the amount of self-repair was found to be related to learning of locatives for the high-complexity group, and the total number of modified output and self-repair was found to be related to learning of past tense for the low-complexity group only in the delayed

post-test, taken seven days after the treatment. Similarly, Kim and Taguchi (2015) found no significant difference in learners' learning of request expressions, measured by a discourse completion test (DCT), between the simple and the complex group in the immediate post-test, but the complex group scored significantly higher than the simple group in the delayed post-test, taken one month after the immediate post-test. More interestingly, although both group of learners in the treatment group (i.e., simple and complex) scored significantly higher than the control group in the immediate post-test, the score of the simple group in the delayed post-test went back to their pretest level while the complex group maintained their learning in the delayed post-test. These results support the possible long-term effects of engaging in higher cognitive complexity tasks and may indicate that learners need some time "to process and consolidate learning before measurable effects of interaction are found" (Nuevo et al., 2011, p. 196).

On the other hand, some studies (e.g., Nuevo, 2006) revealed inconsistent findings in terms of the relationship among task complexity, interactional-driven learning opportunities, and subsequent L2 learning. Among the nine interactional measures (e.g., recasts, metalinguistic talk, hypothesis formulation), only hypothesis formulation was produced significantly more in the complex version of the task compared to the simple version. Regarding learning of the two target structures (i.e., past-tense and locative prepositions), no learning effect from tasks with differing cognitive complexity (simple and complex) was found for past-tense compared to the control group while for locative prepositions the high complexity group scored significantly higher than the control group (but not the simple task group) in one of the post-tests (i.e., oral production test). This result may have been influenced by the characteristics of the target linguistic form. For

instance, linguistic forms like past-tense are difficult to notice and also difficult to acquire in a short amount of time. Three days of treatment tasks might not have been enough to see significant improvement in learners' use of past tense.

Another reason may lie in the context of learner-learner interaction, where both learners do not have sufficient language proficiency or enough knowledge about the target form to provide useful feedback to each other. Learners may also think that it is socially inappropriate to provide linguistic feedback (particularly those that are negative) to their peers. Moreover, as revealed in previous studies on language-related episodes (LREs), not all LREs are resolved correctly at the end. For instance, in Kim's (2009a) study, the low proficiency learners were able to resolve only 54% of the LREs correctly in the simple version of the picture narration task and 56% in the complex version. Although the high proficiency learners were able to resolve LREs more frequently (64% and 74%, respectively), still the remaining LREs were either unresolved or incorrectly resolved, which show that higher number of interactional features do not directly lead to learning of the target form. This is also in line with previous studies of learner-learner interactions (e.g., Adams, 2007; Toth, 2008), which proposed that the rates of learning may be lower in learner-learner interactions compared to those in interactions between native speaker (NS) and learner.

Lastly, the assessment used in a study to measure learners' L2 learning may not have been able to correctly measure "item-based learning" occurring during interaction (Nuevo et al., 2011, p. 197). It is possible that the learners may have acquired the specific linguistic items that they specifically discussed in LREs or negotiation sequences. However, unless an assessment directly tests this specific item that the learners discussed

during the interactions, it may be difficult to find a direct causal relationship regarding whether the learning outcomes were actually transferred to other settings. As recommended by several researchers (e.g., Adams, 2007; Nuevo et al., 2011), this requires tailor-made post-tests for individual learners, which may seem impractical in many classroom settings. None of the included studies have tested learners' L2 learning using tailor-made tests. Instead, they used some type of oral production test or grammaticality judgment tests to measure learners' learning of the target linguistic form (e.g., past-tense, locative prepositions), rather than directly testing whether learners acquired the specific target form that they discussed during interaction. Further research on this dimension would provide more valuable insights into the relationship among cognitive complexity of a task, learning opportunities, and L2 learning.

2.9. Conclusion

The present study sought to investigate some of the predictions of the Cognition Hypothesis by synthesizing previous research findings on the Cognition Hypothesis, particularly (a) whether raising resource-directing task demands promote more interaction-driven learning opportunities, (b) how various learner-related and task-related variables may influence this relationship, and (c) whether the increased amount of learning opportunities result in subsequent L2 learning. Findings of this synthesis review indicated that although previous literature generally support the predictions of the Cognition Hypothesis, various methodological issues need to be considered when interpreting the findings of these studies. Issues related to validation of task complexity across tasks that are designed to be less or more cognitively demanding and also operationalization of task complexity following Robinson (1995)'s framework need to be examined for consistency

and clarity across studies. In order to accurately examine the effects of increased cognitive complexity on learner-learner interaction and language learning, it is highly important to design tasks that are clearly distinct in task complexity: the complex task should be clearly more cognitively demanding than the simple version. Previous researchers have argued for using various methods to independently measure cognitive task complexity (e.g., time-estimation and dual-task methodology), which will allow validation of the assumption that the designed-to-be more complex task is actually more complex in reality (Sasayama, 2016). Furthermore, future studies should pay utmost attention when operationalizing task complexity following Robinson's framework, particularly making sure that manipulations of resource-directing and resource-dispersing dimensions are not conflated, as inconsistent operationalizations could result in findings that are open to question.

Both researchers and classroom teachers should also take into consideration that various learner- and task-related factors can have significant impact on effects of increased cognitive complexity. As review of previous research revealed, some tasks may be more appropriate for certain type of learners (e.g., with certain level of proficiency, anxiety, or motivation) and also various task-related variables (e.g., task types, task modality) in addition to task complexity variable could influence learners' task performance as well as their learning. Clearly, there is a need for more studies which examine the role of these different variables, particularly in classroom-contexts, in order to provide more insights into how tasks with varying levels of cognitive complexity could facilitate interaction-driven learning in classroom contexts. Future studies should further explore the effects of task complexity in various contexts (e.g., online language learning environment) in more longitudinal manner.

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3. THE EFFECTS OF COGNITIVE AND PRAGMATIC TASK DEMANDS ON PROMOTING LEARNER-LEARNER INTERACTION IN PRAGMATIC TASKS*

3.1. Introduction

Recent second language acquisition (SLA) studies have determined that collaborative tasks promote interaction among learners and provide various language learning opportunities where they can practice their developing L2 in authentic contexts (Ellis & Shintani, 2013; Long, 1985; Philp, Adams, & Iwashita, 2014). Previous researchers have investigated various task-related factors (e.g., task complexity, task difficulty, task types, task modality, planning time) and how these variables affect learner-learner interaction, their language production during task performance, and subsequent L2 development. Among these task-related factors, Robinson's (2001a) framework of task complexity, i.e., cognitive factors related to the design of the task, has received considerable research attention as the basis of designing and sequencing tasks (e.g., Baralt, 2010; Gilabert, Barón, & Llanes, 2009; Kim, 2009a, 2009b; Révész, 2009, 2011; Robinson, 2001a, 2007b).

Robinson's Cognition Hypothesis (2001a, 2003, 2005, 2007a) claims that tasks should be designed and sequenced in the direction of increasing cognitive complexity and "these design and sequencing decisions should be the basis of the task-based syllabus"

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* A figure presented in this chapter is reprinted with permission from *RAEL: revista electrónica de lingüística aplicada*. (AESLA- I.S.S.N.: 1885-9089). Salazar, P., Safont, P., & Codina, V. (2009). "Refusal strategies: A proposal from a sociopragmatic approach Refusal strategies: A proposal from a sociopragmatic approach" (8), 139-150.

(Robinson, 2007b, p. 193). Robinson highlights the importance of task complexity in facilitating interaction-driven learning opportunities and subsequent interlanguage development, particularly those related to task-specific features. Previous literature has generally supported Robinson's cognition hypothesis that tasks with higher cognitive demands promote larger amount of interactional features among learners operationalized as language related episodes (LREs, i.e., "any part of a dialogue in which students talk about the language that they are producing, question their language use, or other-or self-correct", Swain & Lapkin, 1998, p. 70) and negotiation of meaning during task performance (Robinson, 2001b, 2003, 2005, 2007b). A number of studies further revealed that the relationship between task complexity and amount of interactional features could be affected by the types of interactional measure used, learner-related variables (e.g., L2 proficiency, pair groups, anxiety, working memory) and task-related variables (e.g., task type, task modality). Most of these studies, however, overlooked pragmatic aspects of learners' interaction and only focused on interaction targeting linguistic features (e.g., grammar and vocabulary) despite the natural association between interaction and pragmatics (Kim & Taguchi, 2015, 2016).

Pragmatics is an area which has been particularly under-researched in the task complexity research. As increased task complexity has demonstrated to facilitate interaction-driven learning opportunities, more research is needed which involves pragmatic tasks that are designed to target pragmatic forms (pragmalinguistics) and contextual features (sociopragmatics) such as the level of power and social distance between the interlocutors (Leech, 1983; Thomas, 1983). When designing pragmatic tasks, however, most of the studies (e.g., Gilabert & Barón, 2013; Kim & Taguchi, 2015) created

tasks with varying levels of task complexity only using task-related cognitive demands without considering possible pragmatic demands of each task. As learners' task performance and interaction among learners can vary depending on pragmatics-specific features of each task (e.g. the relationship between the interlocutors and the context of the interaction), it is essential to investigate the role of pragmatic variables in task complexity research. To date, only few studies (e.g., Kim & Taguchi, 2016; Taguchi, 2007) have examined the effects of pragmatic task demands on learner-learner interactions and on their task performance.

In order to address these gaps, the present study aims to explore the relationship between task complexity, pragmatic task characteristics, and interaction-driven learning opportunities operationalized as pragmatic-related episodes (PREs). To be specific, this research examines the effects of cognitive and pragmatic task demands on generating interaction-driven learning opportunities and learners' task performance. In addition to examining the effects of these task design variables (i.e., cognitive and pragmatic task complexity), one of the task condition variables (i.e., pair-grouping based on learners' L2 proficiency) will be examined in terms of how this variable may impact the occurrence of interactional features (i.e., PREs) during pragmatic tasks and learners' task performance. In order to test Robinson's predictions in his task complexity framework, interaction effect among cognitive task complexity, pragmatic demands, and pair-grouping based on learners' proficiency on the amount of interaction-driven learning opportunities and their written task performance will also be examined.

3.2. Literature Review

3.2.1. Robinson's Cognition Hypothesis and Triadic Componential Framework

Drawing from cognitive approaches of task-based language teaching, task-based researchers emphasized the relationship between cognitive complexity of tasks and learners' L2 language production and learning. Particularly two main proposals have been widely explored: Skehan's Limited Capacity Model (Skehan, 1998) and Robinson's Cognition Hypothesis (Robinson, 1995). Both models focused on how learners allocate their attentional resources during task performance, but they differ in terms of their predictions on the effect of increasing cognitive task complexity on learners' linguistic performance.

In his single-resource model of attention, Skehan claimed that increasing task complexity reduces available attention capacity as learners' attentional resources are limited (Skehan, 1998; Skehan & Foster, 1999, 2001). Therefore, if a task requires high level of cognitive processing, less attention will be available to be given to producing accurate and complex linguistic output. As cognitively complex tasks require more attention to the content, they will allow less attention to linguistic aspects (e.g., fluency, accuracy, complexity), and thus the complexity and accuracy of the linguistic output will suffer. On the contrary, Robinson's Cognition Hypothesis proposed that learners have multiple and non-competitional pools of attention with no trade-off between attention to accuracy and attention to complexity of language production. Cognitively complex tasks, which require more attention, can promote more accurate and linguistically complex language as well as more interaction-driven learning opportunities and incorporation of forms made salient in the input. Robinson's Cognition Hypothesis has improved upon

other proposals on task complexity by providing a systematic framework for manipulating task complexity, allowing researchers to systematically study its effects on L2 production and learning.

Based on his earlier proposals, Robinson (2001a, 2001b, 2003, 2005) proposed a task complexity model from his Triadic Componential Framework. In his model, sources of a task's cognitive demand are differentiated into three groups of factors (i.e., task complexity, task difficulty, and task condition) that influence learners' task performance and L2 learning by interacting with each other (Robinson, 2001b). Task complexity refers to cognitive factors relating to how the task is designed and consists of a number of dimensions which can be manipulated to increase or decrease the cognitive demands of tasks as learners engage in the task.

Task complexity is further divided into two dimensions: cognitive/conceptual (i.e., resource-directing) and performative/procedural (i.e., resource-dispersing) demands. Resource-directing variables ([± few elements], [± hear and now], and [± reasoning demand]) of task complexity make greater demands on learners' attention and working memory in a way that directs them to linguistic resources during task performance (Robinson, 2001b). Thus, increasing task complexity along resource-directing dimensions can promote noticing of task-specific linguistic features, which can facilitate language development (Robinson, 2001a, 2007b). On the other hand, resource-dispersing variables ([± planning], [± single task], and [± prior knowledge]) make increased performative-procedural demands on learners' attentional and memory resources, but they do not direct them to any specific language features (Robinson, 2001b, 2005). Rather, they make learners disperse their attention over non-linguistic areas during task performance, which

may impede learners' language development. Therefore, Robinson claims that task complexity should be manipulated in the direction of increasing resource-directing variables. Furthermore, Robinson strongly suggests that task complexity should be "the sole basis of task-based syllabus design" and clearly distinguished from learner related factors contributing to task difficulty (Robinson, 2011, p. 13).

Task difficulty refers to how learners "perceive" the demands of the task and thus, it is related to learners' ability (e.g., working memory, aptitude) and affective (e.g., motivation, anxiety) variables. Based on these individual learner variables, tasks with the same level of task complexity could be perceived differently by two different learners. Finally, task condition factors refer to interactional factors, which consist of participation required on task (e.g., whether the information is one-way or two-way, whether the goal of the task is convergent or divergent, and whether the solution is open or closed) and participant variables, such as participants' L2 proficiency (whether similar or different) and familiarity with each other. These task condition factors can significantly influence learners' task performance as well as interaction between learners by interacting with the other two variables (i.e., task complexity and task difficulty).

Based on this framework, Robinson's Cognition Hypothesis predicts that increasing task complexity in resource-directing dimensions will promote a) learners' language accuracy as well as complexity of learners' language output, and b) production of interactional features between interlocutors (Robinson, 2001a, 2001b, 2003, 2005, 2007b). The present study aims to examine the second prediction that increased cognitive demands of tasks along resource-directing dimensions will promote more interaction and negotiation

for meaning among learners, generating more learning opportunities, particularly during collaborative tasks.

3.2.2. Task Complexity and Interaction-driven Learning Opportunities

Previous studies on task-based language learning have investigated whether increased task complexity can affect learners' interactional patterns during task-based interaction. These studies have analyzed different conversational moves and corrective feedback types (e.g., comprehension checks, confirmation checks, clarification requests, recasts and uptake) as learning opportunities during collaborative task performance. These interactional features have been found to be conducive to learners' language development because learners engage in processes such as hypothesis testing, self-repair, and metalinguistic talk (Swain & Lapkin, 1995, 1998, 2001; Swain, 1995, 1998; Lyster & Ranta, 1997; Lyster, 1998).

Generally, previous studies have confirmed that requiring L2 learners to engage in more cognitively complex tasks promotes more interaction-driven learning opportunities (e.g., Robinson, 2001b, 2007b; Kim, 2009b; Kim, 2012; Révész, 2011). For example, Révész (2011) found higher rates of language learning opportunities operationalized as LREs including metalinguistic talk, clarification requests, confirmation checks, and recasts in the complex version of the argumentative tasks compared to the simple version. Kim (2009b) also found significantly higher number of LREs related to specific linguistic forms (i.e., questions and past tense) in the performance of the groups who carried out more cognitively complex tasks compared to the group who carried out simpler versions. Furthermore, learners who carried out the most complex tasks (i.e., ++complex) produced

a significantly larger number of LREs involving developmentally advanced question and past-tense forms compared to the other two groups (i.e., simple and +complex group).

However, studies have found that depending on the type of interactional features measured, the effect of task complexity may be different. These studies included different interactional measures (e.g., LREs, recasts, confirmation checks) and found mixed results across different measures (e.g., Gilabert et al., 2009; Nuevo, 2006; Révész, 2011). For instance, Nuevo (2006) analyzed nine different interactional features (i.e., recasts, clarification requests, confirmation checks, comprehension checks, hypothesis formulation, metalinguistic talk, self-repair, noticing of linguistic deficiency, and other repetition) targeting two linguistic features (i.e., past tense and locative prepositions) to identify interaction-driven learning opportunities. She found significantly higher number of hypothesis formulation in the complex group while there was an increase in uptake from recasts, comprehension checks, and other-repetitions in the simple task version. In sum, different task complexity conditions promoted different types of interactional features (i.e., learning opportunities).

However, most of these task-based interaction studies (e.g., Kim, 2009b; Kim, 2012; Nuevo et al., 2011; Solon, Long, & Gurzynski-Weiss, 2017) have used tasks that targeted grammatical and vocabulary features. Accordingly, interactional measures targeted grammatical features such as past tense, locatives, and question development to identify interaction-driven learning opportunities. Only a few studies have examined task complexity in collaborative tasks focusing on pragmatic aspects (e.g., Gilabert & Barón, 2013, Kim & Taguchi, 2015, 2016). Gilabert and Barón (2013) examined the impact of task complexity on L2 learners' use of pragmatic moves (i.e., requests and suggestions).

Learners carried out a cognitively simple and a complex version of two different collaborative tasks: one problem-solving and one decision-making task. In the problem-solving task, learners were required to collaboratively decide their course of action in a hypothetical emergency situation. In the simple version of the problem-solving task, characters in the task picture had no particular roles, and learners had many resources to use. The complex version, however, involved characters with different risk levels and learners were provided with limited resources. For the decision-making task, learners were required to plan an event using role-play. The complex version of the task involved a conflict of interests among the characters while the simple version did not. The complex versions of the two tasks involved more cognitive processes such as comparing, inducing, deducing, and constructing support. Results showed that the learners produced a higher number of pragmatic moves when performing the complex version of the tasks.

Similarly, Kim & Taguchi (2015) analyzed pragmatic-related episodes (PREs, "any discussions on, questions about, or corrections of pragmatic-related language production" [Kim & Taguchi, 2015, p. 664]) targeting the speech act of request as an interactional measure to identify interaction-driven learning opportunities. They used drama script tasks where learners were required to create a dialogue involving a request based on the given picture. A simple and a complex version were designed by manipulating the [+/- reasoning] variable. The simple task condition provided learners with a detailed information on the relationship between the characters and the requesting situation so learners could arrive at the target request-making forms without depending on reasoning process. The complex version, on the other hand, required learners to engage in reasoning processes in order to figure out what was being requested and the relationship between

characters as no specific information on the scenario or the characters were given. In line with the previous findings, the results indicated that more cognitively complex tasks facilitated the occurrence of PREs.

In addition to types of interactional measures used to identify learning opportunities, various task-related or learner-related variables have also been found to affect the effectiveness of task complexity on promoting learning opportunities in learner-learner interaction during task performance (Kim, 2009a). In addition, previous studies have shown that interactional features are influenced in different ways by task complexity. Research findings indicate that not all interactional features are influenced by task complexity in a similar manner.

Gilabert, Barón, and Llanes (2009) examined the effects of increasing the task's cognitive complexity on learners' interaction during oral performance across three different task types with 54 EFL learners. They employed three types of tasks (i.e., a narrative task, an instruction-giving task, and a decision-making task) and manipulated [±here-and-now], [±few elements], and [±causal reasoning] variables. Interactional features such as clarification requests, confirmation checks, recasts, and LREs were analyzed, and the results showed that more complex tasks generally elicited more interactional moves and opportunities for negotiation of meaning. However, the effects of manipulating task complexity differed across different task types. For instance, significantly more LREs and repairs took place during the complex version of the narrative task. Also, the learners produced more clarification requests but significantly fewer comprehension checks in the complex narrative task. Their study showed that increasing

task complexity promoted significantly more use of interactional features during the narrative task and the instruction-giving task, but not in the decision-making task.

Some studies explored the mediating role of learner-related variables, including language proficiency (e.g., Iwashita, 2001; Kim, 2009a, 2009b; Kim & McDonough, 2008; Leeser, 2004; Riccardi, 2014). For example, Kim (2009a) investigated the role of learner proficiency in the outcome of task complexity and interaction-driven learning opportunities with 34 ESL learners from two different proficiency levels. She used two variables along resource-directing dimensions for two different tasks: [±few elements] for the picture-difference task and [±reasoning demands] for the narration task. She analyzed the occurrence of LREs during learners' task performance, and the results showed that the effects of task complexity on the occurrence of learning opportunities differed depending on the task type and language proficiency level of learners. The high proficiency learners produced more LREs in the complex narration task than in the simple narration task, but the opposite result was found for low proficiency learners. As for the picture-difference task, the low proficiency learners produced more LREs in the complex task than the simple task. These findings indicate that studies investigating task complexity should also take learner variables as well as task variables into consideration. Of particular interest to this study is pair-grouping based on learner proficiency and how the production of learning opportunities during learner-learner interaction may differ among different proficiency pairs, which will be discussed in the following section.

3.2.3. Pair-grouping based on Learner Proficiency and Learner-Learner Interaction

Pair grouping, especially grouping L2 learners based on their proficiency, has been a commonly used instructional technique in task-based language teaching context. As one

of learner-related variables, pair grouping is classified as one of the participant variables (i.e., +/-same proficiency) under task condition following Robinson's framework (2005, 2007a, 2007b) and it refers to whether a learner is paired with another learner with the same or different language proficiency (either lower or higher). A number of researchers have explored whether different pair groups produce interaction-driven learning opportunities differently during learner-learner interaction (e.g., Iwashita, 2001; Kim, 2009b; Kim & McDonough, 2008; Leeser, 2004; Watanabe & Swain, 2007).

Most of these studies have found that learners generally produce greater amount of learning opportunities when they work with advanced level proficiency learners (e.g., Kim, 2009b; Kim & McDonough, 2008; Watanabe & Swain, 2007). For example, Kim (2009b) included three types of pair grouping (i.e., low-low, low-high, high-high) based on language proficiency. The study findings showed that the high-high pairs produced the largest amount of LREs targeting question forms among the three pair groups whereas the low-high and low-low pairs produced similar amount of LREs. Furthermore, the high-high pairs were able to resolve significantly higher number of LREs related to developmentally advanced question forms, followed by low-high and low-low proficiency group. Similarly, Kim & McDonough (2008) examined interaction among Korean as a second language (KSL) learners with different proficiency partners during collaborative tasks. Intermediate Korean L2 learners were paired with an intermediate interlocutor when working on the first dictogloss task and with an advanced interlocutor while working on the second dictogloss task. Results revealed that the intermediate-advanced pairs produced significantly more lexical LREs and resolved significantly more LREs correctly compared to the intermediate-intermediate pairs. Watanabe and Swain (2007) also found a greater

amount of LREs when learners collaborated with more proficient interlocutors on a pair writing task compared to when working with less proficiency interlocutors.

On the other hand, Iwashita (2001) found that mixed proficiency dyads (low-high) produced more interactional moves than same proficiency level dyads (low-low, high-high) during two communicative tasks (i.e., jigsaw task and information gap task). Thus, more studies are needed to gain more insights on the role of pair grouping based on learner proficiency in promoting interaction-driven learning opportunities. Moreover, there has been little research on pair grouping based on learner proficiency and interaction-driven learning opportunities in relation to task complexity. Therefore, additional research is needed on the relationship between different pair groups and learning opportunities in tasks with different level of task complexity.

3.2.4. Task Complexity and Pragmatic Task Demands

Most of previous task complexity studies that examined the relationship between task complexity and interactional features related to pragmatics have only considered cognitive task demands when designing tasks with different levels of complexity (e.g., Gilabert & Barón, 2013; Kim & Taguchi, 2015). However, as Kim & Taguchi (2016) pointed out, task characteristics can also be operationalized using pragmatics-oriented criteria. Particularly when designing pragmatic tasks, it is essential to consider various social and interpersonal variables such as the relationship between the interlocutors in terms of their distance and power relationship, the level of the imposition involved in performing a specific speech act and the context of the interaction.

To our knowledge, Taguchi (2007) and Kim & Taguchi (2016) are the only studies that have examined pragmatic task demands that reflects these sociocultural variables.

These two studies followed Brown and Levinson's (1987) politeness theory to operationalize pragmatic task demands. Their theory proposes that social and interpersonal factors (i.e., interlocutors' power difference [P], social distance [D], and the size of imposition [R]) influence the level of directness when a speaker carries out a speech act. For example, a speech act with a high degree of imposition that is addressed to a person who has higher power and larger social distance (e.g., asking your professor for a recommendation letter) requires a greater degree of politeness in order for the speaker to save his/her face. Contrarily, if a speech act with a low degree of imposition is addressed to a person who has equal social relationship and smaller social distance (e.g., asking your sister for a cup), less degree of politeness work is required. Therefore, these contextual features can make a certain speech act more pragmatically demanding to perform compared to other speech acts and thus, should be carefully considered when designing tasks with different level of task complexity.

Taguchi (2007) investigated the effects of task difficulty in the learners' production of requests and refusals in different power relation situations. In her study, she manipulated task difficulty by using two different levels of social distance between the participants. The participants' production was analyzed for overall appropriateness, planning time, and speech rate. The result of her study showed that learners, particularly lower proficiency learners, had more difficulty producing PDR-high speech acts compared to PDR-low speech acts. Overall, tasks including PDR-high speech acts led to less appropriate speech act production, longer planning time, and slower speech rate, indicating less fluency.

Kim and Taguchi (2016) explored the effects of cognitive task complexity in pragmatic tasks with different pragmatic characteristics and examined how the effect of

cognitive complexity on promoting more interaction-driven learning opportunities (i.e., PREs) may differ in tasks with differing pragmatic characteristics. The complex and simple versions of collaborative writing tasks were designed based on manipulation of cognitive complexity (i.e., [+/-reasoning demands]), and each task included two types of pragmatic task characteristics (i.e., PDR-low and PDR-high). PREs were coded for two different pragmatic aspects (i.e., sociopragmatic factors and pragmalinguistic forms). The results showed that higher cognitive task complexity facilitated a greater number of PREs as well as longer turns within each PRE compared to lower cognitive task complexity in both pragmatic situations. This tendency was found only for the PREs targeting sociopragmatic factors but not for pragmalinguistic forms (i.e., request head acts). However, Kim and Taguchi (2016) did not explicitly examine to what extent interaction-driven learning opportunities differ in different pragmatic situations and whether higher pragmatic demands promote more negotiation and interaction among learners. To date, there has been no study which explored pragmatic demands (PDR-high/PDR-low) as an independent variable and how this task-related variable affects occurrence of interaction-driven learning opportunities during learner-learner interaction in pragmatic tasks.

In order to address this gap, the current study aims to examine the effect of pragmatic task demands as well as cognitive task demands on generating interaction-driven learning opportunities targeting the speech act of refusals during the process of carrying out collaborative pragmatic tasks in pairs. It will further examine how these cognitive and pragmatic task demands would influence learners' task performance in terms of the use of speech act of refusal-making. Furthermore, based on Robinson's Triadic Componential Framework, the present study will investigate one of the task condition variables (i.e., pair

grouping based on L2 proficiency) to explain to what extent this variable differentiates the relationship between task complexity and the interactional features as well as quality of task outcomes. Interaction effect among cognitive and pragmatic task demands as well as pair-grouping based on learners' proficiency on the amount of interaction-driven learning opportunities and their written task performance will also be examined. Following research questions guided the study.

Research question 1. How does increase in cognitive task complexity impact production of interaction-driven learning opportunities operationalized as pragmatic-related episodes (PREs)?

Research question 2. To what extent does learners' production of pragmatic-related episodes (PREs) differ in tasks with different pragmatic demands (PDR-high/PDR-low)?

Research question 3. Do different pair-groups based on L2 proficiency produce different amount of interaction-driven learning opportunities operationalized as pragmatic-related episodes (PREs)?

Research question 4. How does increase in cognitive task demands impact the task outcomes (task performance score) in terms of the use of speech act of refusal-making?

Research question 5. How does increase in pragmatic task demands impact the task outcomes (task performance score) in terms of the use of speech act of refusal-making?

Research question 6. Do different pair-groups based on L2 proficiency produce different task outcomes (task performance score) in terms of the appropriate use of refusal-making expressions?

Research question 7. Is there an interaction effect among cognitive and pragmatic task demands and pair-grouping based on learners' proficiency on production of pragmatic-related episodes (PREs)?

Research question 8. Is there an interaction effect among cognitive and pragmatic task demands and pair-grouping based on learners' proficiency on learners' written task performance?

3.3. Methodology

3.3.1. Participants

The participants were recruited from a government-certified ESL institute in a big city in the USA. The institution offers nine levels (Level 1 to Level 9) of English instruction, ranging from beginner to advanced. Students were assigned to a level on the basis of their initial placement exam (i.e., Versant English). The majority of the students were enrolled as full-time students, which is equivalent to 16 hours of instruction each week. The lessons in Level 1 through Level 8 focus on one or more of the core skills of reading, writing, listening, and speaking. They also contain supplementary content and instruction in areas such as grammar, vocabulary, and other essential components of language. Level 9 offers a TOEFL preparation to the students who successfully complete level 8.

The participants included 46 international students (28 females and 18 males) with an average age of 32.85, ranging from 18 to 65. They came from a wide range of national

backgrounds: Venezuela (n=11), Colombia (n=7), India (n=6), Brazil (n=5), Vietnam (n=3), Saudi Arabia (n=2), South Korea (n=2), Angola (n=1), China (n=1), Turkey (n=1), Taiwan (n=1), Libya (n=1), Argentina (n=1), Kuwait (n=1), Equatorial Guines (n=1), Chad (n=1), and Pakistan (n=1). Their first languages included Spanish (n=20), Portuguese (n=6), Arabic (n=4), Vietnamese (n=3), Chinese (n=2), Korean (n=2), Gujarati (n=3), Hindi (n=2), Urdu (n=1), Turkish (n=1), Punjabi (n=1), and French (n=1). Their average length of stay in the US was 20.84 months, ranging from one month to 89 months.

To determine participants' English proficiency, their score on *Versant*™ *English Placement Test* (VEPT) taken at the beginning of the year was used. VEPT is a computerized test which automatically evaluate learners' speaking, listening, reading, and writing using an advanced speech and text processing technology. The participants' average score on the test was 44.28 (SD = 11.91, Min = 20, Max = 64). They were grouped into two levels of proficiency (i.e., low [20-44] vs. high [46-64]) based on their Versant English Test scores. The result of a Welch's t-test confirmed the high proficiency group (M = 53.32, SD = 4.96) having higher VEPT score than the low proficiency group (M = 33.52, SD = 8.12), $t(31.869) = -9.749$, $p < .001$.

3.3.2. Target Pragmalinguistic Form: The Speech Act of Refusal

The present study focused on the speech act of refusals, which is a highly complex speech act that serves as a response to an initiating act (i.e., request, suggestion, offer, or invitation) (Gass & Houck, 1999). Unlike acceptance or agreement, refusal is a dispreferred response to the initiating speech acts as it contradicts the hearer's expectations by indirectly or directly saying "no" (Eslami, 2010; Salazar, 2009). Due to face-threatening nature of refusals, speakers tend to use various mitigation strategies, and engage in a long-

negotiated sequence with different face-saving maneuvers in order to save both the hearer's and speaker's face and not to offend the hearer. Social variables such as age, gender, and power and cultural norms influence the realization strategies that are appropriate for making refusals. Thus, learners need to be aware of these norms along with the correct linguistic structures to be able to refuse appropriately (Felix-Brasdefer, 2004, 2006; Gass & Houck, 1999). The ability to refuse appropriately and in a socially acceptable manner requires high level of linguistic as well as pragmatic competence and thus, refusals can be challenging for L2 learners who often lack the necessary linguistic proficiency as well as sociocultural knowledge (Salazar et al., 2009; Takahashi & Beebe, 1987).

Several classifications of refusal strategies have been proposed, among which the most well-known is the one developed by Beebe, Takahashi and Uliss-Weltz (1990). Their classification of refusals is divided into semantic formulas (i.e., expressions which perform a refusal), which are further divided into direct or indirect, and adjuncts (i.e., expressions which accompany a refusal but cannot perform a refusal by themselves). Based on Beebe et al.'s (1990) work, Salazar et al. (2009) proposed a modified taxonomy (Table 3.1) to analyze the refusal behavior of EFL learners from a sociopragmatic perspective within a conversational analysis (CA) framework. The present study adopted their taxonomy because they analyzed the use of refusal strategies from a conversational analysis perspective in order to provide a full account of what actually takes place in natural conversations unlike some of the previous studies which only analyzed one single conversational turn isolated from the context. Based on Kasper's (2006) model, Salazar et al. (2009) consider the importance of contextual variables (e.g., power, social distance, and

degree of imposition) in interpreting refusal behavior and examine the interplay between these variables, the refusal routine and the conversational turns for refusing (Salazar et al., 2009).

Table 3.1 Taxonomy of refusal strategies. Reprinted with permission from (Salazar et al., 2009, p. 145)

Level of Directness	Strategies	Examples
Direct	Bluntness	No./ I refuse
	Negation of proposition	I can't, I don't think so.
Indirect	Plain indirect	It looks like I won't be able to go.
	Reason/ Explanation	I can't. I have a doctor's appointment.
	Regret/ Apology	I'm so sorry! I can't.
	Alternative • Change option • Change time (Postponement)	I would join you if you choose another restaurant. I can't go right now, but I could next week.
	Disagreement/ Dissuasion/ Criticism	Under the current economic circumstances, you should not be asking for a raise now!
	Statement of principle/ philosophy	I can't. It goes against my beliefs!
	Avoidance • Non-verbal: Ignoring (Silence, etc.) • Verbal: Hedging, changing topic, joking, sarcasm	Well, I'll see if I can.

Table 3.1 Continued

Level of Directness	Strategies	Examples
Adjuncts to Refusals	Positive opinion	This is a great idea, but...
	Willingness	I'd love to go, but...
	Gratitude	Thanks so much, but...
	Agreement	Fine!, but...
	Solidarity/Empathy	I'm sure you'll understand, but...

In their taxonomy, refusal categories are classified into Semantic Formulas and Adjuncts. The Semantic Formulas include strategies that are actually used to perform a refusal and are divided into direct and indirect strategies. Direct strategies consist of two subtypes: i) *bluntness*, which includes the use of a direct "no" or the performative verb "I refuse", and ii) *negation of proposition,* which includes expressions with negations such as "I can't" and "I don't think so." Indirect strategies involve seven different subtypes: i) *plain indirect*, which involves mitigating expressions such as "It seems I can't"; ii) *reasons* or *explanation,* which provides the reason for refusing the request, offer, suggestion, or invitation (e.g., "I have other plans", "My son is sick"); iii) *regret* or *apology*, in which the speaker expresses his/her regret for turning down the request (e.g., "I'm so sorry, I can't"); iv) *alternative,* which entails *change of options*, in which the speaker suggests other alternative options or possibilities in order to maintain a positive relationship with the interlocutor (e.g., "I'll join if you choose another place") and *postponement,* in which the

refuser promises to comply the request at a later time (e.g., “I will help you after school”); v) *disagreement/dissuasion/criticism,* in which the refuser shows disagreement with the requester’s action of asking or dissuades him/her from asking (e.g., “Under the current economic environment, you shouldn’t be asking for a rise right now!”); vi) *statement of principle or philosophy*, in which the refuser expresses his/her moral convictions or beliefs not to comply with the request (e.g., “I can’t. It goes against my convictions”); and vii) *avoidance,* in which the refuser shows non-verbal avoidance by means of silence or leaving and verbal avoidance by using hedges such as “well” and “I’ll see”, changing the topic, or making a joke.

On the other hand, Adjuncts accompany a refusal but do not constitute a refusal by themselves. They involve five subcategories: i) *positive opinion*, in which the refuser reveals that the request, offer, etc. is a good idea but he/she cannot comply with it (e.g., That is a great idea, but…); ii) *willingness*, in which the refuser explains that he/she would be willing to perform the request, suggestion, etc. but he/she cannot (e.g., I’d love to go, but…); iii) *gratitude*, in which the refuser expresses his/her gratitude (e.g., “Thanks a lot, but…”); iv) *agreement*, where the refuser expresses his/her consent before expressing the refusal (e.g., “Yes, but…”); and v) *solidarity* or *empathy*, in which the refuser demands solidarity of the requester by soliciting his/her sympathy (e.g., “I’m sure you will understand, but…”).

3.3.3. Treatment Tasks (Simple and Complex Tasks)

A ‘dialogue construction task’ was used as the treatment tasks for the present study. The tasks required learners to create a dialogue involving the target pragmalinguistic form (i.e., refusal) in pairs based on the provided scenario descriptions and pictures. Each task

included a short scenario describing a situation where one person needed to make a refusal to another person's requests and a picture of the two characters. The scenes reflected everyday life situations which learners are familiar with and tend to encounter in their daily lives.

To create two different levels of task complexity, [+/- few elements] variable along resource-directing dimensions was used based on Robinson's task-complexity framework: simple [+ few elements] and complex [- few elements]. [+/- few elements] variable was manipulated by controlling the number of factors that the participants needed to take into consideration in order to create a dialogue between the two characters in the picture. In the simple version of the tasks, the participants were given only one piece of information related to contextual variables [+ few elements] while three pieces of information were provided in the complex version of the tasks [- few elements]. These contextual variables included information on each character (e.g., 'John does not have many friends at school', 'Emma is very familiar with Victoria's dog'), the relationship between the main characters (e.g., 'John and Maria are close friends', 'Nathan has taken several of Dr. Smith's courses') and the situation/position of each character (e.g., 'Jennifer has been late to work several times this month', 'Nathan needs a recommendation letter from Dr. Smith to apply for a job').

Additional pieces of information provided in the complex version made the situation and the relationship between the two characters more complicated, making it more complex for the participants to come up with appropriate refusing strategies. It was anticipated that the learners would engage in more cognitive reasoning processes (e.g., comparing, analyzing perspectives, inducing, deducing) in the complex task versions

because there were more number of factors about the characters or situations that the participants needed to consider in order to come up with appropriate refusal expressions.

The participants were randomly assigned to two groups: simple (n=22) and complex (n=24). Both treatment groups (i.e., the simple and the complex group) carried out a total of four dialogue construction tasks under two different types of pragmatic task conditions (i.e., PDR-high and PDR-low task). In other words, cognitive task complexity was used as a between-group variable while pragmatic task condition was used as a within-group variable. The two treatment groups (i.e., simple and complex) performed two PDR-low and two PDR-high task versions in each task complexity condition (simple and complex). To operationalize these two types of pragmatic situations, three contextual variables suggested by Brown and Levinson (1987) were used: power (P), distance (D), and degree of imposition (R). In a PDR-high situation, the target refusal has a higher amount of imposition and is made to an interlocutor with both greater power and distance. For example, a situation where a student needs to refuse a request from his or her boss to work for a few extra hours would be a PDR-high situation. In this type of situation, participants need to pay greater degree of consideration and do more politeness-related work to be able to use appropriate refusal strategies. On the contrary, PDR-low refusal has a lower degree of imposition and is made to someone who is both familiar and of the same social status. An example of this type of refusal would be turning down a friend's suggestion to go see a movie.

Based on these two variables (i.e., cognitive task demands and pragmatic task demands), a total of eight dialogue construction tasks for the two treatment groups were designed. Following Robinson's framework, the tasks were kept simple along the resource

dispersing variable in order to clearly distinguish the effects of resource-directing variables from those of resource-dispersing variables. In terms of elements of complexity, this task is +single task (the participants are asked to create a dialogue between the two characters in the provided picture), +prior knowledge (the events described in each narrative are within the range of participants' prior experience), and -planning time. The number of elements [+/-few elements] will be the only factor differentiating task complexity (Robinson, 2003).

In terms of task condition, the tasks are convergent tasks (e.g., problem solving), where students need to reach an agreement about a problem. These types of tasks are more likely to induce interactive features (e.g., more number of turns, more questions, and more confirmation checks) between learners (Duff, 1986, Ellis, 2003; Long, 1989; Pica & Doughty, 1985) compared to divergent tasks (e.g., debating), which allow learners to maintain different positions on a topic and produce different task outcomes depending on their cognitive styles or point of view (Swan, 2005). Moreover, the tasks are two-way, which have been found to elicit more conversational interaction among learners than one-way tasks (e.g., Gass & Varonis, 1985; Long, 1981).

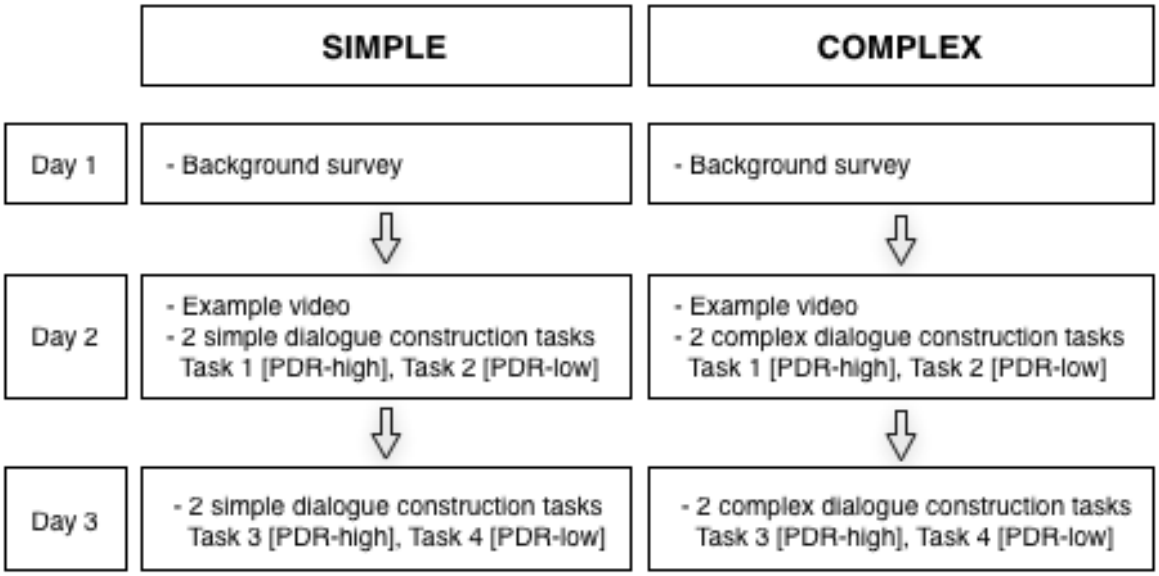
All tasks were piloted with four adult ESL learners (i.e. two low proficiency and two high proficiency learners), who were attending the same ESL institution and comparable to the participants in the main study. Any ambiguous directions or expressions were modified based on pilot participants' comments. The pilot participants were also asked to share their perceptions of how cognitively complex each task was. They confirmed that the additional pieces of information in the complex versions of the tasks pushed them to think more carefully about the context, the relationship between the two characters and which refusal expressions to use (Kuiken & Vedder, 2007). The tasks were

finally reviewed again by one native speaker of English in terms of grammar and language use.

3.3.4. Data Collection Procedures

Data collection took place in three individual sessions over the course of one week. The students participated in the study after their regular class hours and they were randomly assigned to simple cognitive task complexity group (n=22) or complex cognitive task complexity group (n=24). Within each group, the participants were paired with another student with either the same or different proficiency to carry out the simple or complex collaborative dialogue construction tasks and worked with the same partner throughout the tasks. There were three low-low proficiency pairs, five low-high proficiency pairs, and three high-high proficiency pairs in the simple task group (n=22, 11 pairs) and two low-low proficiency pairs, six low-high proficiency pairs, and four high-high proficiency pairs in the complex task group (n=24, 12 pairs). Each session lasted for about one-hour and there was no time constraint for completing the tasks. The experimental procedure is illustrated in Figure 1.

Figure 1. Data Collection Procedure



On the first day, the participants completed a background survey and practiced recording their conversation through a recording app in their smartphone. They also practiced correctly sending the recorded files to the researcher's email as an attachment and the researcher checked each pair to make sure all pairs are familiar with the process. On Day Two, the students first watched a short example video, which showed two students carrying out a similar task to ensure that they understand how they should complete each task (Kim, 2013; Kim & Taguchi, 2015, 2016). After watching the video, each pair carried out two dialogue construction tasks in pairs (i.e., one PDR-low [Task 1] and one PDR-high task [Task 2]), which took about an hour to complete. There was no time limits and the participants were allowed to work on each task as long as they wanted to. The researcher monitored the whole process and answered any questions that the participants had about the task procedure. As practiced on the first day, they audio-recorded their conversations using a recording app in their smartphone while completing each task and sent the file to

the researcher after each task. In addition to the recorded files, their worksheet including the completed 'dialogue' was collected. The students also filled out a task difficulty questionnaire immediately after completing each task. On Day Three, the students followed the same procedure by carrying out two additional tasks (i.e., one PDR-low [Task 3] and one PDR-high task [Task 4]) with different scenarios and completed the task difficulty questionnaire after each task.

3.3.5. Data Analysis Procedures

The purpose of the present study was to examine: (a) whether carrying out tasks with different levels of cognitive and pragmatic demands can facilitate second language (L2) learning opportunities for developing the speech act of refusal during learner-learner interaction, (b) how these task variables (i.e., cognitive and pragmatic task demands) may influence learners' written task performance, (c) how learners' production of PREs and task performance may vary across different proficiency pair groups (i.e., low-low, low-high, high-high), and (d) whether cognitive task complexity, pragmatic task demands, and pair-grouping based on L2 proficiency may interact with each other and influence learner-learner interaction and learners' written task performance. In order to answer these research questions, learners' oral interaction data in the two task groups (simple, complex) were transcribed, coded, and analyzed for pragmatic-related episodes (PREs). Within learners' interaction data, the number of PREs and the number of turns within each PRE were identified and analyzed. A second rater independently coded 20% of the data and 89.5% agreement was established. Any disagreements were discussed until the two raters agreed on a final coding.

Learners' written task outcomes were also graded in terms of whether appropriate linguistic expressions were used (i.e., pragmalinguistics) according to different social context variables (sociopragmatics) (Leech, 1983; Thomas, 1983). A six-point holistic rating scale developed by Taguchi (2007) was adopted and modified for the present study in order to assess learners' pragmatic performance (see Table 3.2). The appropriateness of refusal strategies was rated by the researcher and a second rater, a native speaker of English with a master's degree in ESL. The second rater graded 20% of the data and inter-rater reliability reached 94.7% by calculating the percentage of agreement.

Table 3.2 Appropriateness rating scale for task outcome.

Descriptors		Ratings
Appropriateness	Grammaticality	
Fully appropriate ·Show clear understanding of the given situation. ·Provide reasonable excuse(s) for refusing **and** perform the refusal act in an appropriate way considering the context and the relationship between the interlocutors	No or almost no grammatical and discourse errors.	5
	A few grammatical and discourse errors are noticeable, but they do not interfere with appropriateness.	4.5
Mostly appropriate ·Show clear understanding of the given situation. ·**Either** provide reasonable excuse(s) for refusing **or** perform the refusal act in an appropriate way considering the context and the relationship between the interlocutors.	No or almost no grammatical and discourse errors.	4
	A few grammatical and discourse errors are noticeable, but they do not interfere with appropriateness.	3.5

Table 3.2 Continued

Descriptors		Ratings
Appropriateness	Grammaticality	
Somewhat appropriate ·Show some understanding of the given situation. ·**Neither** provide reasonable excuse(s) for refusing **nor** perform the refusal act in an appropriate way considering the context and the relationship between the interlocutors nor.	No or almost no grammatical and discourse errors.	3
	A few grammatical and discourse errors are noticeable, but they do not interfere with appropriateness.	2.5
Poor Discourse errors make it difficult to determine its appropriateness.	N/A	2
Very poor There is no evidence that the intended speech acts are performed.	N/A	1
No performance	N/A	0

For statistical analysis, three mixed-design three-way repeated measures ANOVA were used for each of the dependent variables including the number of PREs, number of turns per PRE, and task performance score to determine if there is a statistically significant interaction effect between the three independent variables (i.e., cognitive task demands, pragmatic task demands, pair-grouping based on proficiency). Since no significant interaction effect of the three variables was found, main effects of each predictor were examined to compare the group means based on the three dependent variables (i.e., the number of PREs, number of turns per PRE, and task performance score) between the cognitively simple and complex groups, pragmatically simple (PDR-low) and complex (PDR-high) groups, and three pair-groups based on proficiency (i.e., low-low, low-high, high-high).

3.4. Results

3.4.1. Effects of Cognitive and Pragmatic Task Demands on the Frequency and Length of PREs

Descriptive statistics for the total number of PREs and number of turns per each PRE are presented in Table 3.3. Learners in the cognitively complex task group produced a greater number of PREs compared to the learners who performed the cognitively simple task versions. The results of the mixed-design three-way repeated measures ANOVA revealed that the main effect of cognitive task demands showed a statistically significant difference in the number of PREs between the two groups, $F(1, 17) = 9.70$, $p = .006$. When the number of turns within each PRE were compared, however, the results showed that there was no statistically significant difference between the two groups, $F(1, 40) = .104$, $p = .749$.

In terms of the effects of pragmatic task demands on number of PREs, learners produced slightly greater number of PREs when carrying out tasks involving PDR-high situations than those involving PDR-low situations in both cognitive task conditions (i.e., cognitively simple and complex). For number of turns within each PRE, learners in the simple group produced a greater number of turns per PRE when carrying out tasks with PDR-low situations while those in the complex group engaged in slightly longer turns when performing tasks with PDR-high situations. However, these differences in the number of PREs and number of turns per PRE showed no statistically significant difference between the two pragmatic conditions, $F(1, 17) = .09$, $p = .77$ and $F(1, 40) = .350$, $p = .56$, respectively.

Table 3.3 Total number of PREs and number of turns per PRE.

		PDR-Low Situations		PDR-High Situations	
		Mean	*SD*	Mean	*SD*
Simple Task (n=11)	Number of PREs	3.55	1.86	3.64	2.11
	Number of Turns per PRE	6.28	5.41	5.75	4.60
Complex Task (n=12)	Number of PREs	6.83	2.59	7.00	2.76
	Number of Turns per PRE	6.13	2.70	6.19	2.52

3.4.2. Frequency and Length of PREs in Three Pair-groups based on L2 Proficiency

Learners produced a greater number of interaction-driven learning opportunities as their proficiency increased regardless of the pragmatic and cognitive characteristics of the task. As presented in Table 3.4, the largest number of PREs was produced when both learners had high proficiency and the least number of PREs was produced when both had low proficiency (low-low< low-high<high-high). However, the result of mixed design three-way repeated measures ANOVA revealed that the main effect of pair-groups based on proficiency did not show a statistically significant difference in the number of PREs among three pair-groups, $F(2, 17) = 3.01$, $p = .08$.

Table 3.4 Frequency of PREs (number of PREs) for different pair groups.

		PDR-Low Situations		PDR-High Situations	
		Mean	*SD*	Mean	*SD*
Tasks	Proficiency				
Simple task (n=11)	Low-Low (n=3)	3.00	1.00	2.33	1.16
	Low-High (n=5)	3.20	2.17	3.60	2.51
	High-High (n=3)	4.67	2.08	5.00	1.73
Complex task (n=12)	Low-Low (n=2)	4.00	2.83	4.50	2.12
	Low-High (n=6)	7.17	2.48	7.00	2.90
	High-High (n=4)	7.75	2.22	8.25	2.50

In addition to the number of PREs, number of turns within each PRE for different pair-groups was compared. As presented in Table 3.5, learners in both simple and complex groups engaged in longer turns per PRE as their proficiency increased (low-low<low-high<high-high) in both pragmatic conditions. The result of mixed design three-way repeated measures ANOVA revealed a statistically significant difference in the number of turns per PREs among three proficiency pair-groups irrespective of the cognitive or pragmatic task demands, $F(2, 40) = 6.83$, $p = .003$. Therefore, post-hoc pairwise comparisons were performed using the Tukey's test. The result of the Tukey's test showed that the mean number of turns per PRE for the high-high proficiency pairs was significantly higher than that of the low-high proficiency pairs ($p = .017$). However, difference between the low-high proficiency group and the low-low proficiency pairs was not statistically significant ($p = .693$).

Table 3.5 Length of PREs (number of turns per PRE) for different pair groups.

		PDR-Low Situations		PDR-High Situations	
		Mean	*SD*	Mean	*SD*
Tasks	Proficiency				
Simple task (n=11)	Low-Low (n=3)	4.28	1.95	3.25	2.23
	Low-High (n=5)	4.68	3.66	4.33	3.16
	High-High (n=3)	10.95	7.68	10.63	5.11
Complex task (n=12)	Low-Low (n=2)	5.33	2.67	5.33	0.61
	Low-High (n=6)	5.82	3.01	6.34	3.17
	High-High (n=4)	7.00	2.28	6.39	2.08

3.4.3. Effects of Cognitive and Pragmatic Task Demands on Task Performance Score

In addition to the amount of interaction-driven learning opportunities during tasks, learners' task performance was analyzed in terms of their appropriate use of refusal expressions in their dialogue. As shown in Table 3.6, learners in the complex task group scored higher than those in the simple task group regardless of the pragmatic task demands. However, the results of the mixed-design three-way repeated measures ANOVA revealed that the main effect of cognitive complexity did not show a statistically significant difference in task performance scores between the simple and complex groups, $F(1, 17) = .08$, $p = .79$. In addition, learners scored slightly higher when carrying out tasks involving PDR-low situations than those involving PDR-high situations although the difference was not statistically significant, $F(1, 17) = 1.66$, $p = .22$.

Table 3.6 Task performance score of simple and complex tasks with two different pragmatic characteristics.

		PDR-Low Situations	PDR-High Situations
Simple task (n=11)	Mean	4.27	4.11
	SD	.43	.88
Complex task (n=12)	Mean	4.54	4.19
	SD	.55	.87

3.4.4. Task Performance Score of Three Pair-groups based on L2 Proficiency

Table 3.7 shows the task performance score of three different pair-groups based on learners' L2 proficiency. Generally, participants received higher task performance score as their proficiency increased in both simple and complex groups (except the high-high pairs in the complex group (M = 4.50, SD = .54) who scored lower than the low-high pairs (M = 4.79, SD = .29) when carrying out PDR-low task versions). However, the results of mixed design three-way repeated measures ANOVA revealed that there was no statistically significant difference in task performance score among the three pair-groups (low-low, low-high, high-high) in both cognitively simple and complex group, $F(2, 17) = 2.19$, p = .14.

Table 3.7 Task performance score of different proficiency pair groups.

		PDR-Low Situations		PDR-High Situations	
		Mean	*SD*	Mean	*SD*
Tasks	Proficiency				
Simple task (n=11)	Low-Low (n=3)	3.83	.29	3.75	1.15
	Low-High (n=5)	4.40	.29	4.20	1.02
	High-High (n=3)	4.50	.50	4.33	.38
Complex task (n=12)	Low-Low (n=2)	3.88	.88	3.63	1.94
	Low-High (n=6)	4.79	.29	4.17	.80
	High-High (n=4)	4.50	.54	4.50	.29

3.4.5. Interaction Effects among Cognitive Task Complexity, Pragmatic Task Demands, and Pair-grouping based on L2 Proficiency

In addition to analyzing the main effects of three variables (i.e., cognitive task complexity, pragmatic task demands, and pair-grouping based on L2 proficiency) on the amount of interaction (i.e., number of PREs and number of turns per PRE) and task performance independently, a mixed-design three-way repeated measures ANOVA was used to examine whether interaction effects exist among these variables. To be specific, three two-way interactions (i.e., between cognitive task demands and pragmatic task demands, pragmatic task demands and pair-grouping based on L2 proficiency, and cognitive task demands and pair-grouping based on L2 proficiency) as well as a three-way interaction between the three independent variables were examined to find out whether these independent variables interact with each other and affect the amount of interaction among pairs during tasks (i.e., the number of PREs, number of turns within each PRE) and their task performance.

The results revealed no interaction effects between the cognitive task complexity and pragmatic demands on the number of PREs, $F(1,17) = .07$, $p = .80$, $\eta_p^2 = .004$, number of turns per PRE, $F(1,40) = .286$, $p = .60$, $\eta_p^2 = .007$, as well as task performance score, $F(1,17) = .17$, $p = .69$, $\eta_p^2 = .010$. Similarly, no interaction effects were found between the cognitive complexity and pair-grouping variable on the number of PREs, $F(2,17) = .45$, $p = .65$, $\eta_p^2 = .050$, number of turns per PRE, $F(2,40) = 3.95$, $p = .027$, $\eta_p^2 = .165$, as well as task performance score, $F(2,17) = .06$, $p = .95$, $\eta_p^2 = .007$. Again, no interaction effects were found between the pragmatic demands and pair-grouping variable on the number of PREs, $F(2,17) = .08$, $p = .93$, $\eta_p^2 = .009$, number of turns per PRE, $F(2,40) = .184$, $p = .83$, $\eta_p^2 = .009$, as well as task performance score, $F(2,17) = .43$, $p = .66$, $\eta_p^2 = .048$. In terms of the three-way interaction among cognitive complexity, pragmatic demands, and pair-grouping variable, there was also no interaction effect among these variables on the number of PREs, $F(2,17) = .26$, $p = .78$, $\eta_p^2 = .029$, number of turns per PRE, $F(2,40) = .17$, $p = .84$, $\eta_p^2 = .008$, and task performance score, $F(2,17) = .31$, $p = .74$, $\eta_p^2 = .035$.

3.5. Discussion

The present study explored the role of cognitive and pragmatic task demands on promoting interaction-driven learning opportunities as well as learners' task performance in terms of their appropriate use of refusal-making expressions during collaborative pragmatic tasks. The amount of interaction and task performance between different pair-groups based on L2 proficiency were also compared to investigate how different proficiency pairs may perform differently in task with varying levels of cognitive and pragmatic demands. In addition, interaction effect among cognitive task demands, pragmatic task demands, and pair-grouping on the amount of learner-learner interaction

and learners' task outcomes were also examined. Overall, the results of the current study suggested that engaging in collaborative tasks specifically designed for pragmatic learning is beneficial for promoting interaction-driven learning opportunities and learning of the target pragmatic features.

The results revealed that tasks with higher cognitive demands promoted significantly larger amounts of interaction among learners operationalized as pragmatic-related episodes (PREs) represented by significantly greater number of PREs in the cognitively more complex tasks compared to the cognitively simpler tasks. Learners who carried out the cognitively complex task versions also produced a greater number of turns within each PRE, although the difference was not statistically significant. Overall, these findings were in line with the results of previous studies on task complexity which found significantly larger amount of learner-learner interaction when cognitive complexity of the tasks was increased (e.g., Kim, 2009a; Kim & Taguchi, 2016; Révész, 2011; Robinson, 2001a, 2007b).

A larger amount of learner-learner interaction found in cognitively complex tasks could be explained by the fact that cognitive task complexity was manipulated by differentiating the number of contextual variables (+/- few elements) that the participants had to take into consideration when creating a dialogue. In the complex version, the participants were provided with a greater amount of contextual information on the relationship between the two characters (e.g., friends, a student and a professor) and the situation/position of the characters (e.g., one character needs a recommendation letter from the other character, one character does not have other friends to ask for help). Learners were asked to consider all those factors when deciding on an appropriate refusal strategy

for the scenario. Additional pieces of contextual information provided in the complex version made the refusing situation and relationship between the two characters more complicated, pushing learners to engage in a greater degree of reasoning processes and more discussion on the characters, the situation the characters were in, and which type of refusal strategy should be used considering the given contextual information.

Example 1 illustrates a part of two learners' interaction during a cognitively complex task where learners had to consider three additional pieces of contextual information ([-few elements]) when constructing a dialogue using appropriate refusal strategies in the dialogue. As shown in the example, two learners engaged in an active discussion on the given contextual factors and how to come up with an appropriate way to politely refuse the interlocutor's request in the situation.

Example 1: PRE in the cognitively complex_PDR-high task (Task 2)

1. Learner A: However, in this situation she can't help him because she has other work to do.
2. Learner B: Oh. She has other works.
3. Learner A: She needs the money, but she can, she can't work.
4. Learner B: When refusing Mr. Willson's request, first consider the following. It says Monday is her payday.
5. Learner A: Oh, we don't know what's the other works to do so we don't know if that's more important.
6. Learner B: Yes.
7. Learner A: Next Monday is.
8. Learner B: Oh Next Monday Is her payday?

9. Learner A: Yeah. If she refuses to work, her boss may get mad… angry… and.. she may lose her job.
10. Learner B: Yeah. So she should be really polite. Say “I’m so sorry.”
11. Learner A: Yes. Maybe she can say that she promise to work extra hours next time.
12. Learner A: Oh, we have two more things to consider. Jennifer loves her job and wants to continue working here until she graduates, and she has been late to work for several times this month. We need to consider all these to make a dialogue.
13. Learner B: Jennifer has been late. Oh that’s bad.
14. Learner A: Yes. he's boss. He's the boss. Because she was late several times, she needs to make up for it.
15. Learner B: Yeah. So difficult to refuse his request. If not, her boss will really get angry and maybe fire her. She need to say she’s really sorry and she can work extra hours next time.
16. Learner A: Um next week. She needs to make sure… um make it clear that she will work for him next week.
17. Learner B: Yeah. She can work next week to compensate for this week…

Compared to cognitively complex tasks, learners engaged in relatively less amounts of interaction (number of PREs) when carrying out a cognitively simple task. In terms of number of turns per PRE, however, there was no significant difference between the cognitively simple and complex group. As illustrated in Example 2, the participants also engaged in interactions related to sociopragmatic factors such as relationship between the two characters and the situation that they were in as well as which pragmalinguistic forms to use when carrying out a cognitively simple task.

Example 2: PRE in the cognitively simple_PDR-high task (Task 2)

1. Learner A: Next Monday is Jennifer's payday.
2. Learner B: Oh Wow. So she, she has kind of pressure because he's the boss. He..
3. Learner A: Yes, if you work more, have more money, but we need to think in the, the foot of her. Next Monday is the pay day.
4. Learner B: Maybe if you don't work more, maybe the boss can fire you because he has the advantage of the opportunity to say I don't want to work with you anymore and I bet all your money are bye bye.
5. Learner A: Uh huh. We need to think about this situation. How… how to make it sound better to the boss.
6. Learner B: Yeah. He is the boss so she should say she's really sorry for not helping him.
7. Learner A: Yeah. She can say "I'm really sorry boss but…"
8. Learner B: Hmmm. Maybe she can say "I apologize but I won't be able to work this week."
9. Learner A: That's good! "apologize" sounds very polite.
10. Learner B: And then maybe give a reason like…
11. Learner A: I have other works to do.
12. Learner B: No… that's not a good reason. She needs to be more… specific. Specific reason.
13. Learner A: Hmmm. Then maybe "You know I have another job. I have to work for that job. I can't change time for that job."

14. Learner B: Good. She can say “I have a schedule conflict. I have to work for another job this weekend.”

When analyzing learners’ PREs, however, the study showed that larger number of turns within each PRE does not necessarily guarantee higher degree of learners’ engagement nor higher quality PRE compared to a PRE with fewer turns. In some PREs with a large number of turns, many of the turns included utterances that consist of a word or phrase simply agreeing to the partner’s statement (e.g., yeah, okay, good, I think so) or mere repetition of their partner’s previous utterance (e.g., Learner A: “I’m sorry but I can’t.”, Learner B: “I’m sorry but I can’t.”). On the other hand, there were some PREs with much fewer turns (e.g., only two turns in the example) but with much more relevant and to the point discussion about a pragmatic feature (e.g., Learner A: “Mr. Wilson is her boss so it will be really difficult for Jennifer to refuse his request. I think she should say ‘I’m sorry’ first and then tell him an excuse that he can understand. If her reason for refusing is not valid, Mr. Wilson will get really angry at her and maybe fire her.”, Learner B: “I totally agree. Especially since Jennifer wants to continue working there until she graduates… Instead of just saying ‘I can’t this week’, she should also tell Mr. Wilson that she can help him next time although she can’t help him this time.”). Therefore, number of turns within each PRE may not be sufficient as a qualitative measure of learning opportunities and other qualitative measures (e.g., resolution of LREs, see Kim & McDonough, 2008; Kim, 2009a; Leeser, 2004) may be necessary in future studies in order to extend the findings on quantitative measures of interaction (e.g., number of interactional features). For example, LREs could be further analyzed as correctly resolved, unresolved, or incorrectly resolved based on whether the problem or question is solved correctly through self- or other-

correction, or a correct answer was provided to the question which initiated the LRE (Kim, 2009a; Leeser, 2004). In the current study, however, learners' written task outcome (i.e., a dialogue involving a request-making expression) was used to assess whether the PREs occurred during learner-learner interaction were correctly resolved, instead of analyzing learners' resolution of PREs based on their interaction data, because their completed written dialogue reflects successful or unsuccessful resolution of the PREs occurred during task performance.

The participants received slightly higher score on their task performance in cognitively complex versions than in cognitively simple versions in terms of appropriate use of refusals, but the difference was not statistically significant. Learners in both cognitive task conditions were able to create a dialogue including appropriate refusal expressions with an average of more than four points out of five points. These findings were in line with the results of Kim & Taguchi (2015), which also found similarly successful task performance between the cognitively simple and complex tasks in terms of learners' appropriate use of request-making expressions. Successful task performance in Kim & Taguchi's (2015) study, however, could be attributed to the explicit metapragmatic instruction provided to the learners at the pre-task stage. It is important to note that the participants in the current study did not receive any explicit pragmatic instruction prior to the task performance but still showed successful performance in both cognitive task conditions. This may suggest that these types of pragmatic tasks could be an effective method of teaching pragmatics in classroom environments even without the traditional explicit pragmatic instruction.

In addition to cognitive task complexity, the current study investigated pragmatic task demands (PDR-high/PDR-low) as an independent variable to examine to what extent learners' production of interaction-driven learning opportunities as well as their task performance may differ in tasks with different pragmatic demands. The results revealed that participants in both cognitively simple and complex group received slightly higher score when they performed tasks involving PDR-low situations compared to tasks involving PDR-high situations, but the difference was not statistically significant. Learners received relatively high scores on their written task outcomes (more than four points out of five points) regardless of pragmatic demands of the tasks. This result may suggest that the treatment tasks designed for the current study reflected PDR-high and PDR-low situations that were familiar for the learners and were appropriate for their level of pragmatic competence. However, these findings contradict the findings of Taguchi (2007) as she found the use of less appropriate refusal expressions in role-play tasks involving PDR-high situations (e.g., refusing a boss's request to change work schedule) compared to those involving PDR-low situations (e.g., refusing a friend's invitation to the movie). The different findings may have resulted from the modality of the treatment tasks; Taguchi (2007) included oral role-play tasks where learners had to act out a role-play while the current study used dialogue construction tasks where participants worked together and created a written dialogue based on the given scenario. Learners tend to be under both cognitive and psychological pressure when they are asked to perform a role-play especially when they are aware that their performance is being recorded. Thus, learners' performance in role-play tasks including a PDR-high situation could have increased learners' cognitive load as well as emotional stress, resulting in less appropriate pragmatic performance. On

the other hand, learners in our study collaboratively co-constructed a written task outcome while having the opportunity to revise and modify their dialogues and use of refusal strategies throughout the task. There was also no time constraint in our study whereas learners in Taguchi (2007) had to do online processing in real time with time constraints. Therefore, the participants in the current study might have been able to perform the dialogue construction tasks equally well in both PDR-low and PDR-high situations.

When production of interaction-driven learning opportunities (number of PREs, number of turns per PRE) in tasks with different pragmatic demands was examined, no significant difference was found in tasks involving PDR-high situations and PDR-low situations in both cognitive complexity conditions. These findings were similar to Kim & Taguchi's (2016) findings as they found no significant effect of pragmatic demands on promoting learner-learner interaction. In the present study, learners in both cognitively simple and complex group performed two PDR-low and two PDR-high task versions within their cognitive complexity condition. Regardless of whether a task included a PDR-low or PDR-high situation, learners had to engage in discussion around the given contextual information in order to come up with appropriate refusal expressions. Differences in pragmatic demands did not have significant influence on the amount of interaction between learners as both PDR-low and PDR-high versions required learners to consider the same number of elements (i.e., three for the cognitively complex tasks [-few elements] and one for the cognitively simple tasks [+few elements]). These findings suggest that cognitive demands of a task may have a larger effect on learner-learner interaction compared to its pragmatic demands.

Example 3 shows sample interaction data from a cognitively complex task with a PDR-low situation. In the scenario, one character (Victoria) asks her close friend (Emma) to take care of her dog tomorrow when she is away for an important interview, but Emma has to refuse because she has other things to do. The participants had to consider three contextual factors when creating a dialogue including the use of a refusing strategy: a) Victoria's dog does not like to be around strangers, b) Emma is very familiar with the dog, and c) Victoria's parents cannot take care of the dog because they live in a different city. Although the scenario included a PDR-low situation where the characters had equal power, small distance, and low degree of imposition, the participants had high level of interaction discussing the contextual information provided in the scenario, similar to the amount of interaction when they carried out tasks including PDR-high situations.

Example 3: PRE in the cognitively complex_PDR-low task

1. A: Emma would refuse. Emma is gonna say..
2. B: "I would love to take care of your dog but unfortunately I, I can't."
3. A: Because she has other things to do. "I have other things to do."
4. B: Yes. "I have other things to do."
5. A: But Victoria will not stop. She will say that I ask you because the dog is..
6. B: Very familiar with Emma.
7. A: Yes. It says the dog is very familiar with Emma. So Victoria will say "Please consider that. Please Emma. you know my dog is very familiar with you." And he or it?
8. B: It? It's just her dog.
9. A: Hmmm consider the dog as part of family. I think we should refer to he.

10. B: Yes… then what can Emma say? It's so difficult to say no because her dog is so familiar with Emma.
11. A: Oh, it also says the dog doesn't like to be around strangers. Victoria is asking Emma because she's friendly with the dog.
12. B: Yeah. She can't just say no. She should say "I'm really sorry… but I can't help you this time."
13. A: Oh, maybe Emma can say she can help finding someone else who's also familiar with the dog. Maybe her parents? It will sound better if Emma give a suggestion like "what about sending him to your parents?"
14. A: Yes, but the scenario says Victoria's parents live in a different city so they can't take care of the dog.
15. B: Oh, no… it's so complicated. So Victoria will say "I thought about this".
16. A: "I already."
17. B: Yeah. "They are already outside. They live in a different city so they are not available"…

The present study further examined occurrences of interaction-driven learning opportunities operationalized as PREs and learners' task performance among different proficiency pairs. The results revealed that the largest amount of learner-learner interaction (i.e., number of PREs and number of turns within each PRE) was found when both learners had high proficiency and the least amount was found when both had low proficiency (low-low< low-high<high-high) irrespective of the pragmatic and cognitive complexity of the tasks. However, statistical significance was found only in number of turns per PRE among three pair-groups, not in number of PREs, partially supporting previous interaction studies

which found larger amount of learner-learner interaction when learners work with higher proficiency learners (e.g., Kim, 2009b; Kim & McDonough, 2008; Watanabe & Swain, 2007). Learners may have produced similar number of PREs regardless of their proficiency because the treatment tasks (i.e., dialogue construction tasks) required them to discuss sociopragmatic features in one way or another during the process of creating a dialogue. In all task versions, learners had to read the scenario, figure out the relationship between the characters and the situation, and reach a mutual understanding of the given contextual information. All learners had to go through these processes in order to create a refusal dialogue appropriate for each scene, making little difference in producing PREs. However, lower proficiency pairs may not have been able to carry on long turns in their discussions especially when they were paired with other low proficiency partner due to their limited linguistic as well as pragmatic competence. Higher proficiency pairs, on the other hand, could engage in longer and more elaborate discussions in each PRE, represented by significantly larger number of turns in each PRE.

In terms of their task performance, the participants with higher proficiency received slightly higher task performance score in both simple and complex groups, but no statistically significant difference was found among the three pair-groups. All proficiency pairs (i.e., low-low, low-high, high-high) received high scores on the four treatment tasks. This could be explained by the type of a task (i.e., dialogue construction task) used in the current study, which could have been appropriate for both low and high proficiency learners. Dialogue construction tasks may not have been cognitively or pragmatically demanding enough to see significantly different task performance between different proficiency pairs.

In addition, one of the main investigations of the current study was to find out how cognitive task complexity, pragmatic task demands, and pair-grouping variable may interact with each other and affect occurrence of interaction-driven learning opportunities during learner-learner interaction as well as learners' task performance. In his Triadic Componential Framework, Robinson (2001a) claimed that factors that constitute a task's cognitive demand (e.g., task complexity, task difficulty, and task condition) may interact with each other and influence learner-learner interaction and task performance. However, there has been a relative lack of studies which have examined interaction effects between these variables. One study, Taguchi (2007), was able to find a relationship between learner proficiency, pragmatic task demands, and their task outcome. Her study revealed that difference between task performance score (in terms of appropriate use of refusal expressions) of low proficiency learners and high proficiency learners was larger in tasks where they had to perform PDR-high refusals than PDR-low refusals. However, the role of cognitive task complexity in this relationship has not been investigated. The present study aimed to extend the current task complexity research by examining possible interaction effects among cognitive task complexity, pragmatic task demands, and pair-grouping based on L2 proficiency on the amount of learner-learner interaction and their task outcome. However, the findings did not show any significant interaction effect. This result could be due to small number of participants in two cognitive task groups (only 11 pairs in the simple task group and 12 pairs in the complex task group). The number of participants for the study may not have been sufficient enough to find statistically significant interaction effect between all these variables.

In addition to small number of participants, several other limitations of the present study should be considered when interpreting the findings. The present study only examined one pragmatic target (i.e., refusals) in a single task type (i.e., dialogue construction task) similar to previous studies on task complexity and pragmatics learning (e.g., Kim & Taguchi, 2015, 2016; Taguchi, 2007). Future studies should implement other types of collaborative tasks that target various pragmatic targets and task types as they have been found to have an effect on the relationship between task complexity and occurrence of interaction-driven learning opportunities (Gilabert et al., 2009; Kim, 2009a). Future studies should investigate how the relationship among cognitive task complexity, pragmatic task demands, learner-learner interaction, and task performance may differ across various task types. Furthermore, in addition to language proficiency, other learner variables from Robinson's task complexity framework such as learners' aptitude, working memory, and motivation could be used for grouping learners into pairs and examined in terms of how the effects of task complexity may differ in these groups.

Despite these limitations, the present study has both theoretical significance and pedagogical implications. The current study aimed to expand the scope of research on task complexity by implementing pragmatic tasks designed to facilitate interaction-driven learning opportunities and learners' task performance in terms of appropriate use of the target pragmatic features (i.e., refusal-making expressions). To date, there have been very limited research on task complexity which targeted pragmatic aspects of learner-learner interaction. In addition to manipulation of the cognitive task demands, this research considered pragmatic dimensions when examining the effect of task complexity, contributing to current task complexity research.

Furthermore, in the area of instructed pragmatics, previous studies have been rather limited to traditional explicit versus implicit pragmatic instruction and only few studies have implemented task-based instruction as an instructional method (Kim & Taguchi, 2015, 2016). The findings of the current study suggest that collaborative tasks can be an effective method for improving learners' pragmatic competence as learners engage in ample discussions on various sociopragmatic as well as pragmlinguistic features throughout task performance. Interaction-driven learning opportunities were found particularly in pragmatic tasks with increased cognitive demands, which promote various cognitive processes such as deducing, analyzing, comparing, and taking perspectives.

Additionally, the findings of the study have implications for assessment of learners' task performance, particularly in pragmatic tasks. Due to characteristics of pragmatics, assessing learners' task performance in pragmatic tasks in terms of its appropriateness could be challenging as appropriate use of speech acts can vary to across different cultures. This is more evident in tasks targeting particularly face-threatening speech acts such as refusals in which power relationship and distance between the interlocutors have a significant impact on performance of the speech act. For example, when learners were asked to create a refusal dialogue based on the given scenario where an employee has to refuse his or her boss's request, some learners expressed discomfort while carrying out the task. Example 4 illustrates a sample interaction data of two participants who carried out a PDR-high version of a task in the present study.

Example 4: Sample interaction data from a PDR-high task

1 Learner A: It says we need to refuse... say no to our boss when he asks her to work for some extra hours.

2 Learner B: Really? How could we do that? He's the boss.

3 Learner A: Yeah.. I don't know. It says we have to refuse.

4 Learner B: I don't understand. how could we refuse our boss's request? He will fire us. It's impossible. We have to work if he tells us to work.

5 Learner A: Yeah… it's so difficult… She needs the money. She has to work.

6 Learner B: I know… I don't understand…but we still need to make a dialogue. How can we refuse him…

As shown in Example 4, these learners were not comfortable to refuse the boss's request as culture may play a role here as well. Their completed dialogue consisted of several apologies rather than showing a clear refusal, which could be considered as inappropriate from a western perspective. These findings show the importance of carefully considering possible sociocultural differences that may exist among learners from different sociocultural backgrounds when assessing learners' pragmatic performance.

3.6. Conclusion

The present study illustrated potential benefits of collaborative pragmatic tasks on promoting learner-learner interaction, extending the role of cognitive task complexity into pragmatics. The findings revealed that learners engage in meaningful and relevant discussions on both pragmalinguistic and sociopragmatic features particularly in tasks that exert greater cognitive demands on learners regardless of the tasks' pragmatic demands, supporting Robinson's cognition hypothesis. Thus, implementing pragmatic tasks that are carefully designed to promote learner-learner interaction would be beneficial for teaching pragmatics in classroom contexts. The study further shed light on how task condition variables may play a role in the relationship between task complexity and interaction by

investigating the role of pair-grouping variable based on learners' language proficiency. The results revealed significantly longer turns per PRE in high proficiency pairs compared to lower proficiency pairs, suggesting positive effects of grouping learners with a high proficiency partner on promoting richer discussion on pragmatic-related elements. Our study further intended to find out the interaction of task complexity and task condition (i.e., pair-grouping based on learner proficiency) on learner-learner interaction and learners' task performance in order to test Robinson's predictions in his task complexity framework. However, the present study was not able to find any significant interaction effects between these variables. Future studies examining interaction between task complexity variables rather than investigating the effect of each variable in isolation will contribute to expanding our understanding on task complexity research.

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4. THE ROLE OF TASK COMPLEXITY AND INDIVIDUAL DIFFERENCES IN L2 PRAGMATICS LEARNING*

4.1. Introduction

Various types of tasks (e.g., consciousness-raising, recognition, and production tasks) have been used in the field of instructional pragmatics as an effective tool to improve L2 learners' pragmatic competence. For example, structured production tasks such as a discourse completion task (DCT) and oral role play tasks (e.g., Jordà, 2004; Nguyen, 2013) as well as receptive skill tasks such as appropriateness rating tasks and recognition tasks (e.g., Eslami & Eslami-Rasekh, 2008; Utashiro & Kawai, 2009) have often been used in instructional studies in L2 pragmatics (Taguchi, 2015). These tasks have been designed to promote learners' attention to specific pragmatic features, provide opportunities to practice the target pragmatic features in various contexts, and facilitate learners' metapragmatic knowledge by reflecting on cross-cultural differences and their understanding of pragmatics (Cohen & Ishihara, 2013; Eslami-Rasekh, 2005).

As submitted by Kim & Taguchi (2015), tasks have been defined too broadly in L2 pragmatic research to be qualified as tasks as defined by researchers in task-based language teaching (e.g., Bygate, Skehan, & Swain, 2001; Ellis, 2003; Samuda & Bygate, 2008; Willis, 1996). Furthermore, there has been little systematic effort to investigate

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* A figure presented in this chapter is reprinted with permission from *RAEL: revista electrónica de lingüística aplicada*. (AESLA- I.S.S.N.: 1885-9089). Salazar, P., Safont, P., & Codina, V. (2009). "Refusal strategies: A proposal from a sociopragmatic approach Refusal strategies: A proposal from a sociopragmatic approach" (8), 139-150.

which task-related variables should be considered in designing pragmatic tasks and how these variables could be manipulated in order to effectively promote L2 pragmatic learning. One of the most popular frameworks used to explore the role of cognitive task complexity in second language use and learning is Robinson's taxonomy of task complexity as it provides useful guidelines for designing, selecting, sequencing, and implementing task-based instruction in different areas of language.

To date, most of the task complexity studies have focused on grammar or vocabulary as a linguistic target (e.g., Kim, 2009b; Nuevo, 2006; Nuevo, Adams, & Ross-Feldman, 2011) and the role of task complexity and its potential effect in L2 pragmatics development has not received much research attention. As pragmatics requires understanding of both linguistic forms (i.e., pragmalinguistics) and social context in which the linguistic forms are used (i.e., sociopragmatics), investigation of task complexity effects on learners' pragmatic development can provide more research insights through expanding the scope of task complexity framework.

In this study we examine the effects of task complexity on the development of L2 pragmatic competence. We define pragmatic competence as the knowledge of using appropriate pragmalinguistic forms in relation to contextual variables such as power, distance, and imposition (Brown & Levinson, 1987; Canale, 1983; Canale & Swain, 1980; Chomsky, 1980). Furthermore, we aim to extend the task complexity research by examining how the relationship between task complexity and L2 pragmatics learning is moderated by various learner variables (i.e., L2 proficiency and anxiety) related to task difficulty in Robinson's framework.

4.2. Literature Review

4.2.1. Task Complexity and Cognition Hypothesis

Robinson's (2011) Cognition Hypothesis proposes that cognitively complex tasks, due to their increased communicative demands, can (a) prompt increased attention to L2 form-meaning mappings by directing attention to task-relevant linguistic elements, (b) result in greater interaction and negotiation of meaning to resolve the communicative challenge they pose compared to cognitively simple tasks, and (c) facilitate L2 development. Robinson (2001a, 2001b, 2003, 2005) suggested a taxonomy of task characteristics known as the Triadic Componential Framework (TCF). Within his Triadic componential framework, Robinson distinguished task and learner characteristics into three groups of factors (i.e., task complexity, task difficulty, and task condition) and proposed that these factors influence learners' task performance as well as L2 learning by interacting with each other. In this model, task complexity refers to "the result of the attentional, memory, reasoning, and other information-processing demands imposed by the structure of the task on the language learner" (Robinson, 2001b, p. 28).

Robinson further classified task complexity into two dimensions: cognitive/conceptual (i.e., resource-directing) and performative/procedural (i.e., resource-dispersing) demands. Resource-directing variables make greater demands on learners' attention and working memory in a way that directs them to task-relevant linguistic features during task performance by requiring learners to consider several elements ([- few elements]), use higher level of reasoning skills ([+reasoning demand]), and/or explain events that are displaced in time and space ([-here and now]) (Robinson, 2001b). Therefore, increasing task complexity along resource-directing variables make greater

demands on learners' attentional and memory capacity that affects the allocation of cognitive resources to specific aspects of the L2 facilitating L2 learning (Robinson, 2001a, 2001b, 2005, 2007).

On the other hand, resource-dispersing variables deplete learners' attention and induce increased performative-procedural demands on learners' attentional and memory resources by providing no planning time ([-planning]), requiring learners to perform more than one task at the same time ([-single task]), and/or providing no prior knowledge support ([-prior knowledge]). Robinson claims that tasks should be kept simple along these resource dispersing variables (i.e., [+planning], [+single task], and/or [+prior knowledge]) in order for learners to benefit from increased task-complexity along resource-directing variables.

Robinson argues that task complexity should be "the sole basis of task-based syllabus design" as it is the only task feature that is fixed and invariant (Robinson, 2011, p. 13). He further claims that task complexity should be clearly distinguished from learner factors contributing to task difficulty. Learner factors, which consider individual differences between learners in their cognitive and affective resources, can explain between-learner differences in task performance (Robinson, 2011). Individual learner variables (e.g., motivation, anxiety, working memory, L2 proficiency) can influence learners' perception of demands of a task as well as their task performance. Lastly, task condition factors refer to interactional factors, including types of participation required in task (e.g., one-way or two-way information exchange, convergent/divergent goals, open/closed solution) and participant variables (e.g., whether the participants have same proficiency and/or gender, or they are familiar with each other). These task condition

variables can influence how learners interact with each other while completing the task as well as their language production and task performance.

Based on this framework, Robinson proposed several predictions of the Cognition Hypothesis (Robinson, 2001b, 2003, 2005) regarding the effects of task complexity on: (a) language production; (b) interaction and uptake of information available in the input; and (c) individual differences. The Cognition Hypothesis predicts that increasing the cognitive demands of tasks (i.e., task complexity) along resource-directing variables, which directs learners' attention to linguistic resources, can push learners to produce more accurate and complex language during task performance in order to meet the greater functional and communicative demands that more complex tasks place on learners (see Jackson & Suethanapornkul, 2013 for a systematic review). Second, increased task complexity along resource-directing variables can facilitate more interaction and heightened attention to and memory for task-related input, which can promote learning and incorporation of forms made salient in the input. Thirdly, individual differences in learners' cognitive (e.g., working memory) and affective factors (e.g., motivation, anxiety) will differentiate their task performance and learning as task complexity is increased. A large number of task-based researchers have tested these hypotheses, but the developmental outcomes of increased task complexity have not been widely explored.

4.2.2. Task Complexity, L2 learning and Pragmatics

Previous studies have shown that increasing task complexity along resource-directing variables leads to more occurrences of interaction-driven language learning opportunities (e.g., Gilabert, 2007; Kim, 2012; Kim & Taguchi, 2015; Robinson, 2001a, 2007). Their findings revealed that increased task complexity resulted in a greater need to

interact and negotiate meaning. Moreover, it has been suggested that increasing task complexity can facilitate L2 learning through interaction, attending to forms, and redirection of attention to more complex linguistic structures (Robinson, 2005).

However, only few studies (e.g., Baralt, 2013; Kim, 2009b; Kim & Tracy-Ventura, 2011; Nuevo, 2006; Nuevo et al., 2011) have examined the relationship between increased task complexity and L2 learning, and the findings have been inconsistent. For example, Kim (2009b) investigated whether increased task complexity along [+/-reasoning demand] and [+/-few elements] dimensions would facilitate interaction-driven learning opportunities (i.e., Language Related Episodes/LREs) related to question and past-tense as well as further linguistic development. Learning of the two target linguistic forms was measured by oral production test and metalinguistic tests. Her results demonstrated that learners who carried out the most complex task (i.e., ++complex) produced the greatest number of LREs related to the target features and also showed the most linguistic development of the target structures.

On the other hand, some other studies (e.g., Nuevo, 2006; Nuevo et al., 2011) found limited evidence that increasing task complexity promotes learning of the target linguistic forms. For instance, Nuevo (2006) examined whether increased task complexity (i.e., [+reasoning]) leads to greater use of interactional features and subsequent L2 development. Learning of the two linguistic features (i.e., past-tense and locative prepositions) was assessed through an oral production and a grammaticality judgment test. In terms of past-tense development, there was no significant difference between the two treatment groups (i.e., the simple and the complex group) and the control group. For development of locative prepositions, the high complexity group significantly

outperformed the control group, but the simple task group did not. No significant difference was also found between the simple and the complex group. These findings suggest that it is not task complexity alone that affects the amount of interaction; there might be other factors that mediate the link between task complexity and interaction. Some potential factors involve task type, outcome measures, and learner proficiency.

Furthermore, previous studies mainly focused on L2 learning in areas of morphosyntax. There has been very limited investigation on the relationship between task complexity and learners' learning outcomes in other aspects of language such as pragmatics. Gilabert & Barón (2013) was the first study which explored the relationship between task complexity and learners' pragmatic use related to the speech acts of requests and suggestions. Thirty-six EFL learners carried out simple and complex versions of problem-solving and decision-making tasks collaboratively. The results demonstrated that learners produced higher number of pragmatic moves (mainly requests and suggestions) while performing the complex version of the two tasks. They suggested that higher reasoning skills required in completing the complex versions of the tasks might have promoted their pragmatic development (Gilabert & Barón, 2013). However, their study did not address whether the increased use of pragmatic moves leads to better learning and retention of the target pragmatic forms.

On the other hand, Kim and Taguchi (2015) explored the relationship among task complexity, the amount of interaction-driven learning opportunities (operationalized as pragmatic-related episodes targeting the speech act of requests), and L2 pragmatics development. Collaborative writing tasks used in the study were specifically designed to direct learners' attention to the target pragmatic forms and contextual features associated

with them. The participants in the treatment groups were asked to create a dialogue involving a request based on the picture, which depicts a scene where one interlocutor is requesting something from another interlocutor. A pre-, post- and delayed post-test design was employed to assess participants' learning of target pragmalinguistic forms (i.e., the speech act of requests). The participants' ability to use requests was measured via written discourse completion tests (DCTs). In terms of interaction-driven learning opportunities, participants in the complex group produced significantly more pragmatic-related episodes targeting contextual features as well as request head acts and preparators compared to those in the simple group. The results showed evidence of learning in the two treatment groups (i.e., simple and complex) in the immediate posttest but the difference was not statistically significant between the two groups. Interestingly, learners who carried out the complex tasks maintained their learning gains as shown in their delayed posttest scores while the scores of the participants who performed the simple tasks went back to their pretest level. This partially confirms the Cognition Hypothesis that tasks that put higher cognitive demands on learners promote longer retention of the target forms.

Kim and Taguchi's (2015) study played an important role in expanding the scope of task complexity studies into L2 pragmatics. However, it is clear that further studies are needed to explore the relationship between task complexity and learning of various pragmatic targets (e.g., refusals, apologies). More research is also needed in designing different types of pragmatic tasks that can effectively draw learners' attention to both pragmalinguistic and sociopragmatic features in order to facilitate their learning of pragmatics.

4.2.3. Task Complexity, L2 Learning, and Individual Differences

One of the main predictions of the Cognition Hypothesis is that learner variables, which contribute to perceived difficulty of the task, interact with task-related factors, which contribute to the cognitive demands of the task, and influence the effects of task complexity on L2 production and interaction-driven learning (Robinson & Gilabert, 2007). Furthermore, it has been suggested that individual differences in ability (e.g., L2 proficiency, working memory, intelligence) and affective factors (e.g., anxiety, motivation) will increasingly differentiate L2 performance and learning in task-based interactions as tasks increase in cognitive complexity (Robinson, 2003, 2005; Robinson & Gilabert, 2007).

Within Robinson's Triadic componential framework, the effects of individual differences have been emphasized under the construct of "task difficulty" and it has been agreed that these learner factors clearly influence learners' perceptions of the cognitive demands of tasks and their effects during task performance (Robinson, 2005). However, there is paucity of research on the interaction between these three dimensions (i.e., task complexity, task difficulty, and individual differences).

To date, only few studies (e.g., Kormos & Trebits, 2011; Révész, 2011; Robinson, 2007) have explored how various individual differences interact with task complexity and affect L2 production and performance during task-based interactions. For example, Robinson (2007) investigated the effects of language anxiety (i.e., Input, Processing, and Output anxiety) on EFL learners' oral production during narrative tasks with three different levels of cognitive complexity (i.e., simple, medium, complex). Individual differences in input, processing, and output anxiety (IPOAS) were assessed using an 18-item

questionnaire developed by MacIntyre and Gardner (1994). The results revealed that output anxiety tended to be associated with the accuracy and complexity of L2 speech production more than input or processing anxiety. Output anxiety correlated negatively with the use of complex structures on all task levels and increasingly so across the simple, medium, and the complex task, confirming the hypothesis. The learners with low anxiety were induced by complex task demands to produce more complex speech in contrast to those with high anxiety. On the other hand, when the high anxiety learners participated in a task with high cognitive demands, their anxiety hindered the extent to which they benefited from additional interaction in a more complex task.

In contrast to Robinson's (2007) results, several studies which examined other learner-related factors did not find significant effects for individual differences. Révész (2011) explored to what extent individual differences in self-perceived communicative competence, linguistic self-confidence, and language-use anxiety moderate the association between task complexity and the quality of linguistic output as well as the number and types of interaction-driven learning opportunities. Both global and specific measures of speech production and self-perception questionnaires were used to assess the three individual difference variables. The results showed that these three individual variables had no association with the learners' speech production and the occurrence of interactional features.

Another study (i.e., Kormos & Trebits, 2011) investigated working memory capacity as an individual learner variable and how it was related to accuracy, fluency, complexity, and lexical variety of learners' output in two versions of oral narrative tasks (i.e., less cognitively demanding and more cognitively demanding). The results found a

significant effect of working memory only in one of the tasks, the cognitively simpler one. Specifically, working memory was found to positively influence the syntactic complexity of the students' output in the simple version of the task.

However, these studies mainly focused on how individual differences affect learners' language performance during tasks rather than examining how these learner factors may moderate the relationship between task complexity and L2 learning. To date, only few studies have investigated learner variables and how they may moderate L2 development (e.g., Baralt, 2010; Kim & Tracy-Ventura, 2011). For example, Kim and Tracy-Ventura (2011) examined the relationship among task complexity, individual differences, and L2 learning. Their study explored the role of task complexity and L2 speaking anxiety in EFL learners' learning of past tense morphology during task-based learner-learner interaction, and whether there was an interaction between task complexity and learners' anxiety level on learning of the target form. Overall, the results revealed that more complex tasks facilitate more language development compared to the simple versions and also low-anxiety learners learned the past-tense morphology better compared to high-anxiety learners.

Their study, however, could not find statistically significant interaction effect for task complexity and language anxiety on the two posttests. There is a clear need for further research which examines the role of various individual differences (e.g., language proficiency, anxiety, and working memory) in moderating the relationship between the cognitive demands of tasks and L2 learning. Furthermore, previous task-based research has mainly focused on grammar and vocabulary when examining learners' L2 development. There has been a lack of studies which investigate how various learner factors may

moderate the relationship between task complexity and L2 learning in other aspects of language such as pragmatics.

4.2.4. Validation of Cognitive Complexity: Independent Measure of Task Complexity

Many researchers have investigated the construct of cognitive complexity and its effects on L2 learners' task performance and L2 development, and their results have generally showed that tasks with higher cognitive complexity promote better task performance and L2 learning. However, these studies operationalized task-complexity without necessarily checking its validity. In other words, most researchers did not test whether their designed-to-be more complex tasks actually impose higher cognitive demands on learners compared to the designed-to-be simpler versions. A task that a researcher designed to be more complex does not necessarily guarantee that it will exert increased mental efforts from learners, posing a substantial threat to the validity of the study's key independent variable (i.e., task complexity) (Sasayama, 2016). Therefore, several researchers have called for a need for independently measuring the construct of task complexity and adopted various techniques to measure the construct in their studies (e.g. Baralt, 2010; Gilabert & Barón, 2013; Révész, Sachs, & Hama, 2014; Robinson, 2001b; Sasayama, 2016). As mentioned by Sasayama (2016), only when we can verify that our designed difference in task complexity matches the actual cognitive effort engaged in by the learner, we would be able to draw a conclusion on "whether cognitive task complexity leads to theorized effects on task performance and L2 development" (p. 233).

Robinson (2001b) is known to be the first study to independently measure task complexity in the field of TBLT through a subjective, self-perception questionnaire. Several subsequent studies have used this measure to establish the level of task complexity

(e.g., Gilabert, Barón, & Llanes, 2009; Kim, 2009a; Robinson, 2007). In these self-perception questionnaires, learners are asked to rate their perceived levels of task difficulty, stress, confidence, interest, and motivation using Likert scales in order to confirm whether learners' perception of the complexity of the task matches the researcher's intended operationalizations of task complexity (Baralt, 2010).

Motivated by techniques used in cognitive psychology, other more direct and objective techniques have been used in other studies. For example, a dual-task methodology was used in Révész et al. (2014) and Sasayama (2016) to measure cognitive load more directly and objectively. This technique includes a primary task (the task whose cognitive complexity has been manipulated to examine its effect on the dependent variable) and a secondary task, which was designed to measure the cognitive load of the primary task. A common example of a secondary task is a 'color detection task' where learners are asked to respond as quickly as possible to a background color change on the computer screen while simultaneously engaging in a primary task. The assumption here is that when a primary task requires high cognitive demands, it will consume a lot of learner's attentional resources and thus leave little capacity for focusing on the secondary task (Sasayama, 2016). Therefore, the learners will show a slower response rate and less accurate performance in the secondary task. Révész et al. (2014) also used an eye tracking technique as an additional measure of cognitive load. They used a remote eye tracking system and focused on the number of eye fixations and the length of each fixation while the learners were working on language tasks with two levels of task complexity on the computer screen. The premise is that learners will show larger number of fixations as well as longer fixations when carrying out more cognitively demanding tasks. The findings

from their study confirmed that there were significantly more instances of and longer fixations in the designed-to-be more complex task.

Other often used measures include time on task and time estimation. The former refers to the length of time that it took for learners to complete each task, and it is expected that learners will take longer time to complete a cognitively more complex task than a cognitively less complex task (Gilabert & Barón, 2013). The latter technique (i.e., time estimation) is related to the difference between the actual time on task and the length of estimated time that learners think it took for them to complete the task. Learner's subjective time estimation is interpreted differently based on whether it is done prospectively (learners are explicitly told that they will be asked to estimate the time prior to conducting a task) or retrospectively (learners are not told in advance) (Baralt, 2010; Gilabert & Barón, 2013; Sasayama, 2016). In prospective time estimation, it is expected that the estimated time will be shorter for a cognitively more demanding task than for a simpler task as fewer attentional resources will be available to attend to time and thus, allow fewer opportunities for the attentional gate to open (for more information on the attentional gate model, see Zakay & Block, 1997). On the other hand, retrospective time estimation is not influenced by attention to time, and rather, depends on the retrieval of contextual information stored in memory and the amount of various mental processing occurred during task performance. The contextual-change hypothesis claims that the remembered duration of time period increases as people are engaged in greater number of processing during the task (Zakay & Block, 1997). For example, Baralt (2010) used time estimation retrospectively in her study and it was hypothesized that more cognitively demanding task would lead to longer estimated time than the actual time on task. The

results confirmed the hypothesis; the participants' estimated time was significantly longer than the real time on task for the designed-to-be-complex task while their estimated time was significantly shorter than their real time on task for the designed-to-be-simple task. In the present study, three measures (i.e., self-perception questionnaire, time on task, retrospective time estimation) will be used to independently measure task complexity due to the characteristics of the tasks used.

4.3. The Present Study

Extending previous research on Cognition hypothesis, the current study aims to explore whether task-complexity increased along resource-directing dimension leads to L2 pragmatics learning, focusing on the speech act of refusals, and how this relationship would be moderated by various learner-related variables, including L2 proficiency and level of anxiety. The following research questions guided the study:

1. Overall does task-complexity increased along resource-directing dimension facilitate L2 pragmatic development?
2. Do individual differences in language proficiency moderate the relationship between cognitive task complexity and L2 pragmatic development?
3. Do individual differences in language anxiety, as measured by input, processing, and output anxiety (IPOAS), moderate the relationship between cognitive task complexity and L2 pragmatic development?
4. How does cognitive task complexity level affect learners' reported independent measures of cognitive complexity (i.e., affective perception, time on task, and time estimation)?

4.4. Methodology

4.4.1. Participants

Participants included 66 adult ESL learners (females and males) from a government-certified adult ESL institute in a big city in the US. They receive an average of 16 hours of instruction each week and the lessons focus on improving students' four basic language skills including reading, writing, speaking, and listening based on the principles of communicative language teaching (CLT). The students were assigned to a level based on their scores on the placement exam (i.e., *Versant*^{TM} *English Placement Test* [VEPT]), ranging from level 1 to level 9. Their average proficiency was 45.38 (*SD* = 12.30), ranging from 20 to 65.

Their average age was 32.46, ranging from 18 to 65 years old. The students shared a broad range of national backgrounds, including Venezuela (n=17), India (n=11), Colombia (n=7), Brazil (n=7), Saudi Arabia (n=3), Vietnam (n=3), Libya (n=2), South Korea (n=2), Angola (n=1), Turkey (n=1), China (n=1), Taiwan (n=1), Argentina (n=1), Kuwait (n=1), Ecuatorial Guines (n=1), Chad (n=1), Pakistan (n=1), Indonesia (n=1), Azerbaijan (n=1), Tunisia (n=1), Ecuador (n=1), and Jordan (n=1). Their first languages included Spanish (n=27), Portuguese (n=8), Arabic (n=6), Vietnamese (n=3), Chinese (n=2), Korean (n=2), Gujarati (n=3), Hindi (n=6), Urdu (n=2), Turkish (n=1), Punjabi (n=1), French (n=1), Amazigh (n=1), Maithili (n=1), Indonesian (n=1), and Azerbaijani (n=1).

For the purpose of this study, the participants were randomly assigned to one of the following groups based on the level of task complexity: complex (n=24), simple (n=22), or control (n=20). The average proficiency score of each group was 42.77 for the simple

group (*SD* = 12.54), 45.67 for the complex group (*SD* = 11.39), and 47.90 for the control group (*SD* = 13.13). The result of one-way ANOVA revealed that there were no statistically significant differences among the three groups in terms of their language proficiency measured by *Versant*^{TM} *English Placement Test* (VEPT), $F(2, 63) = .918$, $p = .405$.

4.4.2. Target Pragmalinguistic Form- The Speech Act of Refusal

The speech act of refusals was chosen as the pragmatic target in the current study since refusals are regarded as one of the most difficult speech acts for L2 learners due to their intrinsically face-threatening nature (Eslami, 2010). By directly or indirectly saying no to the hearer's initiating act (i.e., request, invitation, offer or suggestion), the speaker can threaten the hearer's positive or negative face (Brown & Levinson, 1987). In order to soften the face-threatening nature of refusals, the speaker needs to employ "as many face-saving maneuvers as possible" (Gass & Houck, 1999, p. 49). For example, the refuser uses various indirect strategies such as providing reasons for refusing or providing alternatives, which naturally lead to longer and more turn-takings in conversations (Felix-Brasdefer, 2004, 2008; Gass and Houck, 1999). This process requires high level of pragmatic as well as linguistic competence, which many L2 learners lack. Moreover, refusals are shaped around social variables such as the social distance and power relationship between the interlocutors, and learners need to have clear understanding of these variables in order to achieve this act appropriately.

In addition to these complexities, refusals are realized around culturally bounded norms and L2 learners need to be aware of these cultural norms along with the appropriate pragmatic and linguistic knowledge in order to perform this act successfully (Beebe,

Takahashi, Uliss-Weltz, 1990; Gass & Houck, 1999). Learners who lack this L2 sociocultural knowledge may fail to refuse appropriately, which can lead to communication failure and even broken relationships. Therefore, appropriate pragmatic instruction is essential to help L2 learners develop this speech act and use it appropriately (Salazar, Safont, & Codina, 2009).

In terms of classifications of refusal strategies, the taxonomy developed by Beebe et al. (1990) has been widely used in interlanguage pragmatics research to analyze refusals (e.g., Campillo, 2009; Kasper, 2006; Rubin, 1983; Turnbull & Saxton, 1997). Their taxonomy divides refusals into semantic formulas (i.e., expressions which perform a refusal) and adjuncts (i.e., expressions that follow a refusal but cannot perform a refusal by themselves). Semantic formulas are further divided into two categories based on the level of directness of refusals (i.e., direct and indirect). Direct strategies include non-performative statements such as "No" or "I can't" as well as performative statements like "I refuse" (Salazar et al., 2009). Indirect category includes various indirect strategies (e.g., providing excuses, alternatives, or explanations) that can be used to mitigate the face-threatening nature of the refusal.

Beebe et al.'s (1990) taxonomy for refusals has been used by numerous researchers with some modifications (e.g., Felix-Brasdefer, 2003; Gass & Houck, 1999; Kwon, 2004; Salazar et al., 2009). The current study adopted Salazar et al.'s (2009) taxonomy (a modified version of Beebe et al., 1990) as it takes a discourse perspective in the study of refusal behavior. Unlike previous taxonomies of refusals, Salazar and her colleagues (2009) analyzed the refusal behavior of EFL learners from a sociopragmatic perspective within a conversational analysis (CA) framework, providing a full account of what actually

takes place in natural conversations. Their taxonomy (Table 4.1) also acknowledges the importance of considering contextual variables (e.g., power, social distance, and degree of imposition) when interpreting refusal behavior (Salazar et al., 2009, p. 146).

Table 4.1 Taxonomy of the speech act of refusing. (Reprinted with permission from (Salazar et al., 2009, p. 145).

Level of Directness	Strategies	Examples
Direct	Bluntness	No./ I refuse
	Negation of proposition	I can't, I don't think so.
Indirect	Plain indirect	It looks like I won't be able to go.
	Reason/ Explanation	I can't. I have a doctor's appointment.
	Regret/ Apology	I'm so sorry! I can't.
	Alternative • Change option • Change time (Postponement)	I would join you if you choose another restaurant. I can't go right now, but I could next week.
	Disagreement/ Dissuasion/ Criticism	Under the current economic circumstances, you should not be asking for a raise now!
	Statement of principle/ philosophy	I can't. It goes against my beliefs!
	Avoidance • Non-verbal: Ignoring (Silence, etc.) • Verbal: Hedging, changing topic, joking, sarcasm	Well, I'll see if I can.

Table 4.1 Continued

Level of Directness	Strategies	Examples
Adjuncts to Refusals	Positive opinion	This is a great idea, but...
	Willingness	I'd love to go, but...
	Gratitude	Thanks so much, but...
	Agreement	Fine!, but...
	Solidarity/Empathy	I'm sure you'll understand, but...

4.4.3. Independent measures of task complexity

Previous task complexity researchers have argued for a need for independent measures of task complexity, which can justify that the deigned-to-be-more-difficult task actually poses higher cognitive demands on learners (e.g., Baralt, 2010; Sasayama, 2016). Three independent measures of task complexity were used in the current study to validate the construct of task complexity. First, self-perception task complexity questionnaire was used following previous studies (e.g., Gilabert & Barón, 2013; Gilabert, Barón, & Llanes, 2009; Kim, 2009a; Robinson, 2001b, 2007). This questionnaire asks learners to rate their perceived levels of task difficulty, stress, confidence, interest, and motivation using a 9-point Likert scale. The participants were asked to fill out the questionnaire right after completing each task. It was expected that the learners would perceive the complex tasks as more difficult compared to the simple versions. The second measure was time on task, which refers to the amount of time that learners took to complete each task. As the two

tasks (i.e., simple and complex versions) only differ in their cognitive task complexity and other variables remain constant, the cognitively complex task was expected to take longer to complete compared to the cognitively simple one (Gilabert & Barón, 2013). Finally, following other task complexity researchers (e.g., Gilabert & Barón, 2013; Baralt, 2010) who have used the techniques used in psychology to independently measure task complexity, time estimation was used retrospectively (i.e., learners were not informed that they would be asked to guess the time spent on the task until after the task was finished) to measure the cognitive load of each task (Baralt, 2010). Learners were asked to estimate how long it took for them to complete the task after each task. It has been suggested that learners tend to judge the task as taking longer than it really did when they are asked to guess the length of time after completing a task with higher cognitive demands (Baralt, 2010). Then, following Baralt (2010), the difference between the length of the actual time that learners took to complete a task and that of the perceived time that they believed it took to complete the task was calculated by subtracting the real time from the estimated time.

4.4.4. Materials

4.4.4.1. Tasks.

The participants participated in the study after their regular classes and were randomly assigned to three groups: simple (n=22), complex (n=24), and control (n=20) group. Participants in the treatment groups (i.e., the simple and the complex group) completed four dialogue construction tasks in two consecutive days. The treatment tasks required learners to complete a dialogue involving the target pragmalinguistic form (i.e., refusal-making expressions) based on the given picture and scenario. Each scenario

described a scene where one character had to refuse another character's request such as refusing a friend's request to help him/her with homework. Two tasks (i.e., Task 1 and Task 3) described a situation where the characters had equal power, low social distance, and the size of imposition was small (PDR-low) while Task 2 and Task 4 included a situation where the degree of imposition was large and a refusal had to be made to an interlocutor with greater power and larger social distance (PDR-high).

When operationalizing task complexity, [+/- few elements] variable along resource-directing dimension was used to create two different levels of task complexity based on Robinson's task-complexity framework: simple task [+ few elements] and complex task [- few elements]. [+/- few elements] variable was manipulated by controlling the number of factors that the participants are required to consider in order to create a dialogue between the two characters in the given scenario. In the simple task version ([+ few elements]), one piece of information was provided while three pieces of information were provided in the complex task version ([-few elements]). These factors include sociopragmatic information on the relationship between the two characters (e.g., 'John and Maria are close friends', 'Nathan has taken several of Dr. Smith's courses') and the situation that each character is in at the moment (e.g., 'Jennifer has been late to work several times this month', 'Nathan needs a recommendation letter from Dr. Smith to apply for a job'), which influence how one interlocutor can appropriately refuse another interlocutor's request. Additional pieces of information make the situation and the relationship between the two characters more complicated, pushing learners to engage in more cognitive processes such as deducing, inducing, comparing, and taking perspectives as there were greater number of variables

related to the characters or the situation that learners had to take into consideration in order to come up with appropriate refusal strategies.

Considering the characteristics of pragmatic tasks, tasks with two different types of pragmatic conditions (i.e., PDR-high and PDR-low) were included in each complexity level based on Brown and Levinson's (1987) contextual variables (i.e., power [P], distance [D], and degree of imposition [R]). In a PDR-high situation, the size of imposition of the target pragmalinguistic form (i.e., refusal) is large and it is made to someone with greater power and distance. A situation where a student needs to refuse his or her professor's request to work as his or her teaching assistant would be an example of a PDR-high situation. In a PDR-low situation, on the other hand, the target pragmalinguistic form has small degree of imposition and equal power relationship and small social-distance between two interlocutors. An example of this type of refusal would be refusing a friend's request to go see a movie.

A pilot test was conducted with four adult ESL learners, who were comparable to the participants in the main study. Any directions or expressions in the treatment tasks that were ambiguous were modified based on the pilot participants' comments. They were also asked to share their perceptions of the cognitive complexity of each task and their responses confirmed that the additional pieces of information on sociopragmatic factors in the complex task versions made it more difficult for them to come up with appropriate refusal expressions for the given scenario.

Following Robinson's framework, all tasks were kept simple along the resource dispersing variable in order to clearly distinguish the effects of resource-directing variables from those of resource-dispersing variables. As Robinson proposed, this allows learners to

efficiently allocate their attention to linguistic features, facilitating L2 learning. In terms of elements of complexity, this task is +single task (the participants were asked to create a dialogue between the two characters in the provided picture), +prior knowledge (the events described in each narrative were within the range of all participants' prior experience), and -planning time. The number of contextual variables (+/-few elements) was the only factor differentiating task complexity.

4.4.4.2. Language Anxiety Questionnaire.

Robinson's Cognition Hypothesis claims that as tasks increase in complexity, individual differences in ability and affective factors relevant to the cognitive demands of the tasks will increasingly differentiate learners' language learning (Robinson, 2007). As an affective variable, the current study measured learners' anxiety specific to L2 learning processes. In the present study, language anxiety is defined as "the feeling of tension and apprehension specifically associated with second language contexts, including speaking, listening, and learning" (MacIntyre & Gardner, 1994, p. 284). From a cognitive psychological perspective, anxiety is considered to cause cognitive interference when performing language learning tasks, particularly complex ones (MacIntyre & Gardner, 1994). Therefore, it was predicted that learners with higher language anxiety would not have as much positive gains from performing tasks which require higher cognitive demands as compared to those with lower language anxiety.

Following Robinson (2007), learners' language anxiety was assessed prior to performing the tasks using the input, processing and output anxiety scale (IPOAS) developed by MacIntyre and Gardner (1994). This anxiety scale is structured around the three-stage model of learning (Tobias, 1979, 1986) and it measures learners' anxiety at

each of the stages (i.e., the Input stage, the Processing stage, and the Output stage). There are three six-item scales, which measure input anxiety, processing anxiety, and output anxiety, respectively. Each scale includes three positively worded and three negatively worded items. Six items related to Input anxiety assess the extent of learners' anxiety experienced when hearing and taking in information in L2; six items related to Processing anxiety measure the level of anxiety experienced when understanding and processing the received input in L2; and six items related to Output anxiety assess learners' anxiety while speaking or writing in L2. Each of these three sources of potential anxiety (i.e., Input, Processing, and Output anxiety) was examined for their influence on learners' pragmatic development in complex and simple tasks.

4.4.4.3. Assessment of Pragmatic Development: Written Discourse Completion Test (DCT).

A written discourse completion test (DCT) was used in the present study in order to measure learners' development of pragmatic competence on refusal expressions. DCTs have been widely used in cross-cultural and interlanguage pragmatics to elicit L2 learners' speech act production and use the elicited data to examine learners' pragmatic competence (e.g., Beebe, Takahashi, & Uliss-Weltz, 1990; Blum-Kulka, 1982; Blum-Kulka & Olhstain, 1984, 1986; Takahashi & Beebe, 1987). Despite their popularity, however, there has been an ongoing criticism on this elicitation format as it cannot reflect features of real conversations such as turn-taking (Hartford & Bardovi-Harlig, 1992). Moreover, learner responses elicited by DCTs reflect their awareness of what they should say in the given context considering various contextual variables rather than what they would actually say in real world. In other words, DCTs tap into learners' metapragmatic knowledge of what

they believe would be situationally appropriate in the given hypothetical situation rather than revealing their actual pragmatic performance in an interactional setting (Golato, 2003). Despite these disadvantages, a written DCT was chosen as an appropriate data collection method for the current study as the purpose was to measure learners' pragmatic competence (i.e., knowledge of which linguistic forms to use in order to perform a language function [pragmalinguistics] considering the contextual factors [sociopragmatics]) rather than their actual pragmatic performance (i.e., ability to perform the speech act of refusal in real life). For comparing different groups' performance and gains, a DCT was also needed in order to be able to keep contextual factors in different situations constant. Furthermore, a written DCT shares the same modality (i.e., writing) as the treatment tasks, which require learners to write a dialogue with their partner.

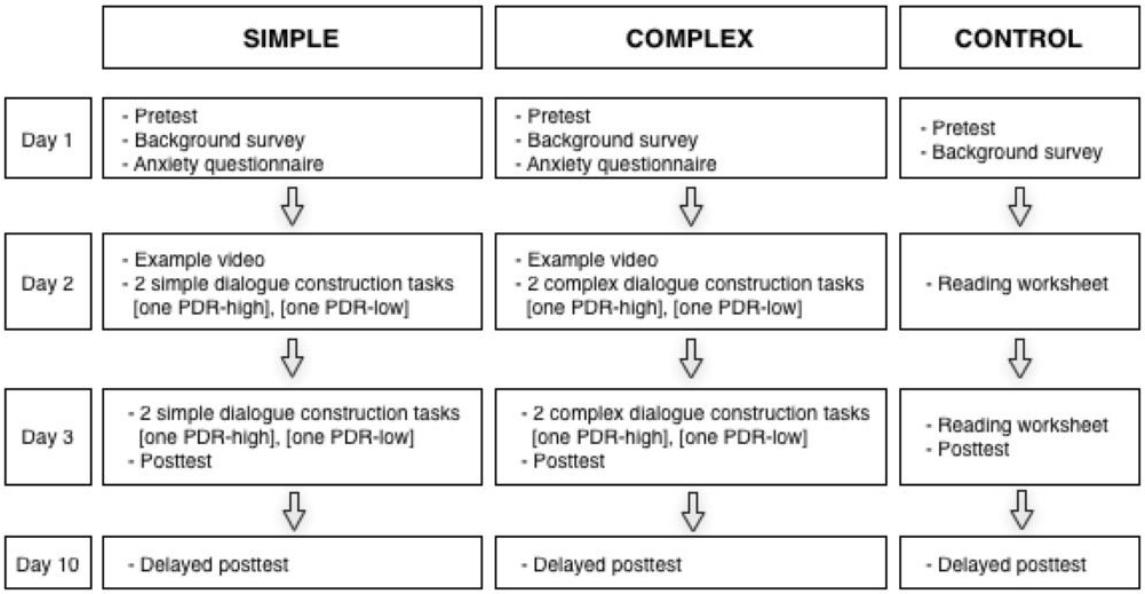
There were 13 items in the written DCTs: Eight refusals (i.e., four PDR-high situations and four PDR-low situations) and five filler items involving nontarget speech acts (e.g., requesting, apologizing, thanking, complaining). Participants were given a short scenario/ prompt describing a hypothetical situation and asked to write the speech act in English. The included refusal situations were different from those included in the treatment tasks. Three versions of the written DCTs were designed for the pretest, immediate posttest, and delayed posttest. The three versions included similar situations but with minor modifications in wording and descriptions in order to minimize a potential practice effect. All versions were pilot tested with four adult ESL learners and their instructor, a native speaker of English with a TESOL degree and certification, and revisions were made in order to make the DCT items as authentic as possible.

4.4.5. Data Collection Procedures

Data collection took place in four individual sessions outside the students' class time over the course of two weeks as illustrated in Figure 2. Participants were gathered in a large classroom at their school and they were randomly assigned to one of three groups: low task complexity group (n=22), high task complexity group (n=24), and control group (n=20). The participants in the treatment groups (i.e., simple and complex) engaged in two treatment sessions in which they performed the simple or complex tasks. The experimental procedure is illustrated in Figure 2. On the first day, the pretest, the background survey, and the anxiety questionnaire were given to the treatment groups (i.e., simple and complex) while the control group only completed the pretest and the background survey. After completing the given worksheets, the participants in the treatment groups were paired up with another student randomly and practiced recording a sample conversation through a recording app in their smartphone. On Day Two, the students in the treatment groups first watched a short video, showing two students completing a similar task, to ensure that the students were familiar with how they should complete each task (Kim, 2013; Kim & Taguchi, 2015, 2016). After watching the video, the participants carried out two dialogue construction tasks (i.e., Task 1 and Task 2) in pairs. The researcher monitored the whole process and answered any questions that the participants had about the task procedure to make sure the participants were following the directions correctly. The total process took about an hour for each session and the students were asked to audio-record their task performance. They were also asked to fill out the task difficulty questionnaire and estimate how long it took for them to complete the task right after completing each task. They carried out another two dialogue construction tasks (i.e., Task 3 and Task 4) on Day Three.

The posttest was immediately given to the participants on Day Three right after they completed all the tasks. The participants in the control group did not engage in any tasks and instead completed a reading worksheet during the treatment sessions. Similar to Nuevo's (2006) study, the delayed posttest was given to the learners a week after the posttest due to practical constraints.

Figure 2. Data Collection Procedure



4.4.6. Data Analysis Procedures

The purpose of the present study was to explore whether task-complexity increased along resource-directing dimension leads to subsequent development of pragmatic competence on the speech act of refusals and how this relationship would be moderated by various learner-related variables, including L2 proficiency and level of anxiety. Three independent measures of task complexity (i.e., affective perception, time on task, and time

estimation) were used to find out whether the designed cognitive complexity of each task matches learners' reported independent measures of cognitive complexity.

4.4.6.1. Research Question 1: Learning Outcome Measures (DCTs)

Learner responses on the three DCTs (i.e., pre, post, and delayed posttest) were analyzed using an appropriateness rating scale (see Table 4.2) adopted and modified from Taguchi (2007). Among the 13 items in each DCT, eight items which elicit refusal expressions were graded. The appropriateness of refusal strategies was rated by the researcher and a second rater, a native speaker of English with a master's degree in ESL. The second rater graded 20% of the data and 93.4% agreement was established. Any disagreements were discussed until the two raters agreed on a final score.

The scores of each DCT (i.e., pre, post, and delayed posttest) were compared across the simple, complex, and control groups. First, normality of all data distribution was tested using the Shapiro-Wilk Normality tests. A Kruskal-Wallis H test was used to examine group differences as the data did not confirm normal distribution. Since a significant group difference was found, Dunn's (1964) procedure with a Bonferroni correction was used for multiple comparisons. For within-group analysis, paired sample sign test was used. In other words, whether there was a significant difference among the pre, post, and delayed posttest was examined for each group (i.e., simple, complex, and control) to measure their development. The alpha level was set at .05 for all statistical tests.

Table 4.2 Appropriateness rating scale of the DCTs.

Descriptors		Ratings
Appropriateness	Grammaticality	
Fully appropriate · show clear understanding of the given situation. · provide reasonable excuse(s) for refusing **and** perform the refusal act in an appropriate way considering the context and the relationship between the interlocutors	No or almost no grammatical and discourse errors.	5
	A few grammatical and discourse errors are noticeable, but they do not interfere with appropriateness.	4.5
Mostly appropriate · show clear understanding of the given situation. · **Either** provide reasonable excuse(s) for refusing **or** perform the refusal act in an appropriate way considering the context and the relationship between the interlocutors.	No or almost no grammatical and discourse errors.	4
	A few grammatical and discourse errors are noticeable, but they do not interfere with appropriateness.	3.5
Somewhat appropriate · show some understanding of the given situation. · **Neither** provide reasonable excuse(s) for refusing **nor** perform the refusal act in an appropriate way considering the context and the relationship between the interlocutors nor.	No or almost no grammatical and discourse errors.	3
	A few grammatical and discourse errors are noticeable, but they do not interfere with appropriateness.	2.5
Poor Discourse errors make it difficult to determine its appropriateness.	N/A	2
Very poor There is no evidence that the intended speech acts are performed.	N/A	1
No performance	N/A	0

4.4.6.2. Research Question 2 and 3: Individual Differences in Language Proficiency and Language Anxiety

Hierarchical multiple regression was run to investigate whether the effect of task complexity on learners' pragmatic development varies depending on language proficiency and language anxiety (i.e., input, processing, and output anxiety). For each moderator variable (i.e., language proficiency and three types of language anxiety), two predictors (task complexity and a moderator) were entered at the first stage and the interaction term between task complexity and a moderator was entered at the second stage. Since the interaction term was not significant, the interaction term was dropped from the model and multiple regression was run with main effects only.

4.4.6.3. Research Question 4: Independent Measure of Task Complexity

As the data were not normally distributed for each level of complexity for all dependent variables, Mann-Whitney U tests were used to compare the affective perception (i.e., difficulty, stress, confidence, interest, and motivation), time on task, and time estimation between the simple and complex tasks.

4.5. Results

4.5.1. Effects of Task Complexity on Learning of Refusal-making Expressions

The first research question examined whether increased task complexity along resource-directing dimension facilitates learners' pragmatic development in terms of appropriate use of refusal-making expressions. The participants' learning outcome was measured by three versions of written DCTs (i.e., pretest, immediate posttest, and delayed posttest). Each test included a total of 13 questions but only eight questions including the target refusal forms were graded. The score range of each test was 0-40 (0-5 points for

each question). Table 4.3 shows the descriptive statistics of the three DCT scores across simple, complex, and control groups.

Table 4.3 Descriptive statistics for DCT scores.

Group	Test	Mean	*SD*	Min	Max
Complex (n=24)	Pretest	27.58	9.02	8.00	37.00
	Immediate Posttest	34.29	4.56	20.50	38.50
	Delayed Posttest	34.44	6.71	10.00	40.00
Simple (n=22)	Pretest	29.73	7.45	11.50	38.50
	Immediate Posttest	33.68	4.04	23.00	39.50
	Delayed Posttest	35.34	3.56	27.50	40.00
Control (n=20)	Pretest	30.18	5.49	17.50	37.00
	Immediate Posttest	30.75	5.71	17.50	39.50
	Delayed Posttest	30.78	3.71	20.50	35.50

A Kruskal-Wallis H test (Kruskal & Wallis, 1952) was used to determine if there were differences in the DCT scores between the simple (n=22), complex (n=24), and the control (n=20) group. Since distributions of the DCT scores were not similar for the three groups as assessed by visual inspection of a boxplot (violating the critical distributional assumption of the Kruskal-Wallis H test), differences in mean ranks instead of medians between groups were investigated. The results showed that there was no statistically significant difference in mean ranks between the three groups in the pretest, $\chi 2(2) = .590$, $p = .745$, but a significant difference in mean ranks was found at both immediate posttest, $\chi 2(2) = 6.485$, $p = .039$, and delayed posttest, $\chi 2(2) = 15.74$, $p < .001$.

In order to find out where the differences exist in the immediate and delayed posttest, pairwise comparisons were performed using Dunn's (1964) procedure with a

Bonferroni correction for multiple comparisons. Adjusted p-values are presented. Values are mean ranks unless otherwise stated. The post hoc analysis revealed statistically significant differences in the immediate posttest scores between the control (mean rank = 24.92) and the complex (mean rank = 39.56) (p = .035) groups, but not between the control and the simple group (mean rank = 34.68) (p = .30) or the simple and the complex group (p = 1.00). At the delayed posttest, statistically significant differences were found between the control (mean rank = 19.30) and the simple (mean rank = 39.68) (p = .002) group as well as the control (mean rank = 19.30) and the complex (mean rank = 39.67) (p = .001) group. However, there was no significant difference between the two treatment groups (simple and complex) (p = 1.00).

As a within-group analysis, paired sample sign test was used to find out whether there was a significant median difference among the pre, post, and delayed posttest for each group (i.e., simple, complex, and control) to measure their development. As presented in Table 4.4, the results revealed that both simple and complex group showed some gains from the pretest to the immediate posttest and maintained their gains in the delayed posttest while the control group did not show any gains in either immediate or delayed posttest. Participants in the simple group scored higher in the immediate posttest (*Mdn* = 34.25) than the pretest (*Mdn* = 31.25) with a statistically significant median increase in the immediate posttest score (median difference = 3.00) compared to the pretest, p = .012. They also maintained their improvement in the delayed posttest (*Mdn* = 36.00) $p < .001$. For participants in the complex group, the paired sample sign test also revealed a significant difference between the pre- (*Mdn* = 32.00) and immediate posttest (*Mdn* = 35.75), $p < .001$, and between the pre- and delayed posttest (Mdn = 36.50), $p < .001$.

Table 4.4 Result of the paired sample sign test.

Group	Gain	Median of Differences	Sig.	Positive Differences	Negative Differences	# of Ties
Simple (n=22)	Pretest-Immediate Posttest	3.00	$p = .012$	16	4	2
	Pretest-Delayed Posttest	3.50	$p < .001$	19	2	1
Complex (n=24)	Pretest-Immediate Posttest	4.75	$p < .001$	23	1	0
	Pretest-Delayed Posttest	5.25	$p < .001$	21	3	0
Control (n=20)	Pretest-Immediate Posttest	0.00	$p = 1.00$	8	9	3
	Pretest-Delayed Posttest	0.00	$p = 1.00$	10	10	0

In sum, the results revealed a strong effect of engaging in pragmatic task-based interactions on learners' pragmatic development as both treatment groups (i.e., simple and complex) showed a significant gain from the pretest to the immediate posttest while the control group did not. It was particularly noteworthy that both simple and complex group maintained their learning in their delayed posttest, suggesting a possible lasting effect of engaging in pragmatic tasks with varying levels of cognitive complexity. At the immediate posttest, however, only the complex group performed significantly higher than the control group and the simple group did not. Both treatment groups, however, showed significantly

higher performance than the control group at the delayed posttest. This may suggest immediate benefits of task-based interaction in pragmatic tasks with higher cognitive complexity while the long-term effects are similar for interaction in both complex and simple pragmatic tasks as no significant difference was found between the two treatment groups (i.e., simple and complex) at the delayed posttest.

4.5.2. Individual Differences in Language Proficiency

In order to examine language proficiency as a moderating variable, hierarchical multiple regression analysis was run to investigate whether the effect of task complexity on learners' pragmatic development varies depending on individual differences in their language proficiency.

A two-stage hierarchical multiple regression was conducted with DCT score at the immediate posttest as the dependent variable to assess the statistical significance of the interaction term between the task complexity and language proficiency. Two predictors (i.e., task complexity and language proficiency) were entered at the first step and the interaction term between task complexity and proficiency was entered at the second step. At stage one, task complexity and language proficiency together contributed significantly to the regression model, $F(2,43) = 11.95$, $p < .001$, and accounted for 35.7% of the variation in the immediate posttest score. However, the result of stage two revealed that there was not a statistically significant moderator effect of language proficiency on the immediate posttest, as evidenced by the addition of the interaction term explaining an additional 0.7% of the total variance, which is not statistically significant ($F(1,42) = .490$, $p = .488$, $\Delta R^2 = .007$). Therefore, the interaction term was dropped from the model and multiple regression was run with main effects only. The new model revealed that there was

statistically significant positive linear relationship (b = .213 , SE = .044) between the immediate posttest score and language proficiency ($p < .001$). One point increase in proficiency score was associated with an average increase of 0.231 in the immediate posttest score controlling for the complexity of the tasks.

Same procedures were conducted for examining the moderator effect of language proficiency on the delayed posttest. Again no statistically significant moderator effect of language proficiency was found on the delayed posttest, as evidenced by the addition of the interaction term explaining an additional 2.9% of the total variance, which is not statistically significant ($F(1,42) = 1.86$, $p = .179$, $\Delta R^2 = .029$). When multiple regression was run with main effects only, the results showed that there was statistically significant positive linear relationship (b = .247, SE = .057) between the delayed posttest score and language proficiency ($p < .001$). One point increase in the participants' proficiency score was associated with an average of 0.25 increase in the delayed posttest score controlling for the complexity of the treatment tasks.

To summarize, no statistically significant interaction effect was found for task complexity and language proficiency on either posttest. However, language proficiency was found to be a significant predictor for both immediate and delayed posttest. Learners received higher scores on both posttests as their proficiency increased irrespective of the cognitive complexity of the tasks that they performed.

4.5.3. Individual Differences in Language Anxiety

Prior to completing the treatment tasks, participants' language anxiety was measured using an anxiety scale (i.e., input, processing and output anxiety scale [IPOAS]) developed by MacIntyre and Gardner (1994). In order to examine whether each type of

anxiety plays a moderating role in the relationship between task complexity and learners' pragmatic development, hierarchical multiple regression analysis was used for each type of anxiety.

4.5.3.1. Input Anxiety

Following the same procedures for testing language proficiency as a moderating variable in the previous section, two separate hierarchical multiple regressions were run with immediate and delayed posttest as the dependent variable to assess the statistical significance of the interaction term between the task complexity and input anxiety. At the first step, task complexity and input anxiety were entered as the two predictors. The two predictors together accounted for 12.2% of the variation in the immediate posttest score and 4.0% of the variation in the delayed posttest score. However, these were not statistically significant, for either the immediate posttest, $F(2,43) = 2.982$, $p = .061$, or the delayed posttest, $F(2,43) = .903$, $p = .413$. The interaction term between task complexity and input anxiety was then entered into the model. The results revealed that there was no statistically significant interaction effect between task complexity and input anxiety on both the immediate posttest ($\Delta R^2 = .042$, $F(1,42) = 2.12$, $p = .153$) and delayed posttest ($\Delta R^2 = .018$, $F(1,42) = .784$, $p = .38$).

Therefore, the interaction term was removed from the model and multiple regression was run with main effects only. The new model revealed that there was statistically significant negative linear relationship (b = –1.68, SE = .70) between the immediate posttest score and input anxiety ($p = .021$), but not between the delayed posttest score and input anxiety (b = -1.13, SE = .93, $p = .23$). Increase of one point in input

anxiety was associated with a decrease of 1.68 score in immediate posttest score controlling for the complexity of the treatment tasks.

4.5.3.2. Processing Anxiety

Following the same hierarchical multiple regression procedure, task complexity and processing anxiety were entered as the two predictors at the first step. The two predictors together accounted for 9.1% of the variation in the immediate posttest score and 7.1% of the variation in the delayed posttest score. These scores were not statistically significant for either the immediate posttest, $F(2,43) = 2.155$, $p = .128$, or the delayed posttest, $F(2,43) = 1.648$, $p = .204$. The interaction term between task complexity and processing anxiety was then entered into the model. The results revealed that there was no statistically significant interaction effect between task complexity and processing anxiety on both the immediate posttest ($\Delta R^2 = .020$, $F(1,42) = .927$, $p = .341$) and delayed posttest ($\Delta R^2 = .006$, $F(1,42) = .270$, $p = .606$).

Thus, the interaction term was removed from the model and multiple regression was run with main effects only. The new model revealed that there was statistically significant negative linear relationship (b = .-1.82, SE = .903) between the immediate posttest score and processing anxiety ($p = .05$). One point increase in processing anxiety was associated with a decrease of 1.82 score in immediate posttest controlling for the complexity of the treatment tasks. For the delayed posttest, however, the new model could not find statistically significant negative linear relationship (b = -1.982, SE = 1.151) between the delayed posttest score and processing anxiety ($p = .09$).

4.5.3.3. Output Anxiety

Following the same procedure as the above moderators, output anxiety and task complexity were entered as the two predictors at the first stage. The two predictors together accounted for 3.8% of the variation in the immediate posttest score and 1.6% of the variation in the delayed posttest score. The effects, however, were not statistically significant for either the immediate posttest, $F(2,43) = .842$, $p = .438$, or the delayed posttest, $F(2,43) = .350$, $p = .707$. At the second stage, the interaction term between task complexity and output anxiety was entered into the model. Similar to the results of input and processing anxiety, there was no statistically significant interaction effect between task complexity and output anxiety on both the immediate posttest ($\Delta R^2 = .007$, $F(1,42) = .293$, $p = .591$) and delayed posttest ($\Delta R^2 = .011$, $F(1,42) = .470$, $p = .497$).

Therefore, the interaction term was dropped from the model and multiple regression was run with main effects only. The new model revealed that there was no statistically significant negative linear relationship (b = .-1.035, SE = .859) between the immediate posttest score and output anxiety ($p = .235$). For the delayed posttest, the model also did not show statistically significant negative linear relationship (b = -.681, SE = 1.095) between the delayed posttest score and output anxiety ($p = .537$).

4.5.4. Independent Measures of Task Complexity

As independent measures of the construct of task complexity, three quantitative measures were used: (1) affective perception questionnaire to measure learners' perceived difficulty of each task, (2) length of time spent completing each task, and (3) the distance between the actual time and perceived time for each task. The following section reports the statistical findings and results for each measure.

4.5.4.1. Affective Perception

After completing each task, the participants were asked to fill out a self-perception questionnaire where they rated their perceived levels of task difficulty, level of stress, ability to complete each task, interest in tasks, and motivation to work on the tasks in order to confirm whether their perception of the complexity of the task matches the intended operationalizations of task complexity. Table 4.5 shows the descriptive statistics of the participants' responses to the questionnaire.

Table 4.5 Response to each perception item.

	Group	Task 1	Task 2	Task 3	Task 4
Difficulty	Simple	2.55 (1.71)	2.95 (2.01)	2.36 (1.71)	2.86 (2.36)
	Complex	4.58 (3.11)	4.75 (3.00)	3.96 (2.48)	5.13 (2.59)
Stress	Simple	2.95 (2.01)	2.73 (1.70)	2.77 (2.00)	2.91 (2.16)
	Complex	4.38 (2.81)	3.83 (3.02)	3.92 (2.90)	4.13 (2.38)
Confidence	Simple	7.59 (1.53)	7.45 (1.79)	7.45 (1.47)	7.41 (1.56)
	Complex	5.67 (2.88)	5.75 (2.89)	5.58 (2.95)	6.5 (2.60)
Interest	Simple	6.91 (2.14)	7.00 (1.88)	7.18 (1.33)	7.09 (1.69)
	Complex	7.71 (1.76)	8.13 (1.30)	7.83 (1.13)	7.79 (1.59)
Motivation	Simple	7.45 (1.74)	7.27 (2.07)	7.18 (1.47)	6.82 (1.82)
	Complex	8.13 (1.39)	7.79 (2.23)	7.71 (1.94)	7.33 (2.22)

Note. Mean (SD)

To determine if there were statistically significant differences in learners' response to each item between the simple and the complex group for each of the four tasks, Mann-Whitney U test was run for each item for each task. First, a Mann-Whitney U test was conducted for "Difficulty" score of each task as a dependent variable and two task complexity groups as an independent variable. Since distributions of the difficulty score

for the two groups were not similar for all four tasks, differences in mean ranks instead of medians between groups were examined. As presented in Table 4.6, the results revealed that the mean ranks of the complex versions of the four tasks were significantly higher than the mean ranks of the simple versions, confirming that the complex version of the four tasks were perceived as more difficult for learners compared to the simple version.

Table 4.6 Results of the Mann-Whitney U test on "Difficulty" item.

	N		Mean Rank		*U*	*Z*	*P*
	Simple	Complex	Simple	Complex			
Task 1	22	24	19.34	27.31	355.00	2.061	.039
Task 2	22	24	19.43	27.23	353.50	2.002	.045
Task 3	22	24	18.98	27.65	363.50	2.245	.025
Task 4	22	24	18.11	28.44	382.50	2.658	.008

In terms of "Stress", the complex tasks were also rated more stressful than the simple tasks for all four tasks. Since distributions of the stress score for the simple and the complex groups were similar, differences in median were investigated. As shown in Table 4.7, the results of the Mann-Whitney U test for the Stress score revealed that the difference between the complex and the simple versions of the four tasks was not statistically significant.

Table 4.7 Results of the Mann-Whitney U test on "Stress" item.

	N		Median		*U*	*Z*	*P*
	Simple	Complex	Simple	Complex			
Task 1	22	24	2.00	5.00	328.50	1.444	.149
Task 2	22	24	2.00	2.50	289.00	.565	.572
Task 3	22	24	2.00	3.50	316.00	1.174	.240
Task 4	22	24	2.00	4.50	338.50	1.671	.095

For "Confidence", the participants who carried out the complex tasks were less confident about their ability to complete the four tasks compared to those who carried out the simple tasks. As the distributions of the difficulty score for the two groups in all four tasks were not similar, mean ranks were used instead of medians to compare the difference between the two groups. As presented in Table 4.8, the results of the Mann-Whitney U test revealed that the participants in the complex group were significantly less confident than the simple group when carrying out task 1, 2, and 3. On the other hand, for task 4, there was no statistically significant difference in the Confidence score of the simple (mean rank = 25.70) and the complex group (mean rank = 21.48), $U = 215.50$, $z = -1.096$, $p = .273$.

Table 4.8 Results of the Mann-Whitney U test on "Confidence" item.

	N		Mean Rank		*U*	*Z*	*P*
	Simple	Complex	Simple	Complex			
Task 1	22	24	27.89	19.48	167.50	-2.163	.031
Task 2	22	24	27.59	19.75	174.00	-2.019	.044
Task 3	22	24	27.75	19.60	170.50	-2.099	.036
Task 4	22	24	25.70	21.48	215.50	-1.096	.273

Regarding “Interest”, the participants rated the complex versions to be more interesting than simple versions for all four tasks. Since the distributions of the Interest score for the two groups in all four tasks were not similar as assessed by the visual inspection, mean ranks were used instead of medians to compare the difference between the two groups. As shown in Table 4.9, this difference between the simple and the complex version was statistically significant for Task 2 and 4 but not significant for Task 1 and 3.

Table 4.9 Results of the Mann-Whitney U test on “Interest” item.

	N		Mean Rank		*U*	*Z*	*P*
	Simple	Complex	Simple	Complex			
Task 1	22	24	20.57	26.19	328.50	1.472	.141
Task 2	22	24	18.50	28.08	374.00	2.520	.012
Task 3	22	24	20.09	26.62	339.00	1.708	.088
Task 4	22	24	19.55	27.12	351.00	1.981	.048

In addition, the complex versions of the four treatment tasks received higher motivation score than the simple versions. The Mann-Whitney U test was run to determine if this difference was significant for each task. Distributions of the difficulty score did not have similarly shaped distributions for the two groups (simple, complex) for the treatment tasks so the differences in mean ranks (distributions) were used for the analysis. As presented in Table 4.10, the result of the Mann-Whitney U test revealed that for none of the four tasks, there was statistically significant difference between the motivation score for the simple and the complex versions.

Table 4.10 Results of the Mann-Whitney U test on "Motivation" item.

	N		Mean Rank		*U*	*Z*	*P*
	Simple	Complex	Simple	Complex			
Task 1	22	24	20.95	25.83	320.00	1.334	.182
Task 2	22	24	20.11	26.60	338.50	1.740	.082
Task 3	22	24	19.86	26.83	344.00	1.817	.069
Task 4	22	24	19.86	26.83	344.00	1.805	.071

4.5.4.2. Time on Task

As a second measure of task complexity, the amount of time that learners took to complete each task was recorded. It was expected that the complex version of each task would take significantly longer for learners to complete compared to the simple version since the two versions of tasks only differ in their cognitive task complexity and all other variables remain constant.

As shown in Table 4.11, for all four tasks the participants in the complex group took slightly longer to complete the complex task version than those in the simple group who carried out the simple task versions. As the data was not normally distributed for each level of complexity for all tasks, a nonparametric test (i.e., Mann-Whitney U Test) was conducted to determine if there were statistically significant differences in the amount of time on task between the simple and complex group for each task. Distributions of the time on task did not have similarly shaped distributions for the two groups (simple, complex) for the four tasks so the differences in mean ranks (distributions) were examined. As presented in Table 4.12, the results revealed that the difference in the length of time between the two complexity groups was not statistically significant for any of the tasks (Task 1: $p = .481$, Task 2: $p = .930$, Task 3: $p = .792$, Task 4: $p = .792$).

Table 4.11 The length of time for completing each task.

	Simple (n=22) Mean (*SD*)	Complex (n=24) Mean (*SD*)
Task 1	332.82 (195.84)	376.04 (243.61)
Task 2	403.73 (258.44)	404.33 (209.76)
Task 3	506.91 (258.92)	508.33 (259.49)
Task 4	530.00 (202.26)	533.75 (158.11)

Note. Measures are presented in seconds.

Table 4.12 Results of Mann-Whitney U test.

	N		Mean Rank		*U*	*Z*	*P*
	Simple	Complex	Simple	Complex			
Task 1	22	24	22.05	24.83	296.00	.704	.481
Task 2	22	24	23.32	23.67	268.00	.088	.930
Task 3	22	24	22.95	24.00	276.00	.264	.792
Task 4	22	24	22.95	24.00	276.00	.264	.792

Note. *P* = Asymptotic Sig. (2-sided test)

4.5.4.3. Time Difference Score

The participants were asked to estimate the time that they think it took for them to complete each task immediately after completing each treatment task. For each task, both the real time and the estimated time were recorded for each pair. Then, a time difference score was calculated by subtracting the actual time from the estimated time. Average time difference scores per group for each task are provided below in Table 4.13. It was expected that the participants would perceive the complex tasks to be taking much longer than the actual time on task compared to the simple ones. In other words, it was believed that the

time difference score for the complex group would be higher than that for the simple group.

Table 4.13 Average time difference score per group for each task.

	Simple	**Complex**
Task 1 Time difference score (estimated time - real time)	93.73 (247.95)	186.88 (279.14)
Task 2 Time difference score (estimated time - real time)	42.73 (198.07)	138.08 (165.48)
Task 3 Time difference score (estimated time - real time)	7.54 (109.74)	115.42 (181.28)
Task 4 Time difference score (estimated time - real time)	0.27 (147.76)	106.46 (210.62)

Note. Mean (*SD*). The values are presented in seconds.

As presented in Table 4.14, the participants estimated the complex versions of the four tasks to be taking much longer than the real time compared to the simple tasks. A Mann-Whitney U test was run to determine if these differences in time judgment score between the simple and the complex group were significantly different for each task. Since distributions of the time judgment score between the two groups in the treatment tasks were not similar, mean ranks instead of medians were used. The results of the Mann-Whitney U test indicated that there was significant difference in time judgment scores between the simple and the complex task groups for all four treatment tasks.

Table 4.14 The results of the Mann-Whitney U test.

	N		Mean Rank		*U*	*Z*	*P*
	Simple	Complex	Simple	Complex			
Task 1	22	24	19.45	27.21	353.00	1.960	.05
Task 2	22	24	19.05	27.58	362.00	2.164	.03
Task 3	22	24	19.18	27.46	359.00	2.091	.037
Task 4	22	24	18.55	28.04	373.00	2.399	.016

4.6. Discussion

The present study examined the effects of task complexity during collaborative pragmatic tasks on the learning of the speech act of refusals and the role of learners' language proficiency as well as language anxiety in moderating the relationship between cognitive task complexity and L2 pragmatic development in adult English language learners. Overall, a strong effect of task-based pragmatic interaction was found on learners' pragmatic development in terms of developing refusal strategies. Learners in both treatment groups (i.e., simple and complex) showed a significant improvement from the pretest to the immediate posttest while the control group did not show any gains. They also maintained their gains one week after the treatment, with significant improvement in their delayed posttest compared to their pretest score. These findings support the effectiveness of using collaborative pragmatic tasks in promoting pragmatic development.

When learners' scores on the written DCTs (i.e., immediate and delayed posttest) across the three groups (i.e., simple, complex, and control) were compared, however, only the complex group performed significantly higher than the control group while the simple group did not perform significantly higher than the control group at the immediate posttest. At the delayed posttest, learners in both treatment groups performed significantly higher

than the control group. These findings may suggest that the immediate effect of engaging in these pragmatic tasks on learning of the target pragmatic expressions may only be observable when the cognitive complexity of the tasks is high. When learners carry out collaborative pragmatic tasks with low cognitive complexity, on the other hand, learners may not receive immediate gains. However, using pragmatic tasks-based interactions may show an immediate effect when it is combined with different types of pragmatic instruction. For example, Kim & Taguchi (2015) provided explicit pragmatic instruction on the target pragmalinguistic form (i.e., requests) to both simple and complex group at the pre-task stage. Their findings support immediate benefits of collaborative pragmatic tasks when combined with explicit pragmatic instruction as evidenced by significantly higher performance of both treatment groups than the control group at the immediate posttest.

In the long-term, however, engaging in collaborative pragmatic tasks can be beneficial for learners' pragmatic development regardless of the level of cognitive complexity as evidenced by both treatment groups' (i.e., simple and complex) significantly higher scores in the delayed posttest compared to the control group. These findings contrast with Kim & Taguchi's (2015) study where only the complex group maintained their learning gains in the delayed posttest (after one month) and the simple group's scores went back to the pre-task level. Their study found long-term effects of engaging in interactions in higher task complexity condition in the development of request-making expressions, confirming Robinson's Cognition Hypothesis that tasks with higher cognitive demands facilitate longer retention of the target forms. Although the current study could not confirm the Cognition Hypothesis, it is noteworthy that learners in both simple and complex task group performed significantly better at the delayed posttest than control

group even without any explicit pragmatic instruction. This may suggest possible long-term effect of collaborative pragmatic task interactions irrespective of the tasks' cognitive demands.

In addition, the present study further explored interaction between task complexity and individual learner differences, specifically learner proficiency and language anxiety. The goal was to test one of the main predictions of the Cognition Hypothesis that individual differences will interact with task-related variables contributing to the cognitive demands of a task and influence the effect of task complexity on L2 learning (Robinson, 2007; Robinson & Gilabert, 2007). Findings of the current study could not find significant interaction effect for language proficiency and three types of language anxiety (i.e., input, processing, and output anxiety) on learners' pragmatic development measured by two written DCTs (i.e., immediate posttest and delayed posttest) in relation to task complexity. With regard to the role of learners' language proficiency, although we could not find interaction effect between task complexity and language proficiency on learners' development of refusal-making expressions, statistically significant positive linear relationship between language proficiency and learners' pragmatic development was found. As learners' proficiency increased, learners received higher scores on both posttests irrespective of the cognitive complexity of the tasks that they performed. These findings suggest that there are positive effects of interaction in collaborative pragmatic tasks on learners' pragmatic development regardless of the complexity level of the task.

One possible explanation for finding no interaction between task complexity and learners' language proficiency on learners' pragmatic development of refusal strategy may be related to characteristics of pragmatics. When carrying out a task targeting pragmatics,

learners' clear understanding of the contextual information is essential such as the power relationship between the characters and the degree of imposition (i.e., sociopragmatics), in addition to their linguistic knowledge, in order to produce linguistic forms that are appropriate for the situation (pragmalinguistic). Therefore, in the present study, level of learners' understanding of situational characteristics may have had a larger effect on their performance on the posttests than their language proficiency. The treatment tasks were also designed by manipulating the amount of contextual information (+/– few elements) to create two levels of task complexity (i.e., simple and complex). Furthermore, when assessing learners' pragmatic development through three written DCTs (i.e., pretest, immediate posttest, and delayed posttest), mainly appropriateness of the refusal strategies was evaluated, not their linguistic accuracy. Therefore, the effect of language proficiency on the relationship between task complexity and pragmatic development may not have been large enough to reveal a significant interaction effect.

Similar to the findings related to language proficiency, the current study could not find statistically significant interaction effect between task complexity and three types of language anxiety (i.e., input anxiety, processing anxiety, output anxiety) on learning of refusal strategies. This result was in line with the findings of Kim & Tracy-Ventura (2011) where they found no significant interaction effect between task complexity and classroom speaking anxiety on learners' development of past tense morphology. In their study, learners' level of anxiety was found to have no significant influence on the effectiveness of tasks with high cognitive complexity. One of the potential reasons for finding no interaction effect may be related to the language anxiety questionnaire (i.e., the input, processing, and output anxiety scale [IPOAS] developed by MacIntyre and Gardner, 1994)

used in the current study. This anxiety scale mostly focuses on anxiety that learners feel while learners listen or read (input), understand (processing), and speak or write (output) linguistic materials rather than anxiety related to sociopragmatics such as anxiety that learners feel when interacting with other interlocutors with higher power and large social distance or when the degree of imposition is high. Furthermore, the criteria for differentiating simple and complex task versions in the current study was cognitive demands of the tasks manipulated by the amount of contextual information related to sociopragmatics (+/-few elements), not linguistic complexity or difficulty. Due to these reasons, the level of language anxiety related to linguistic aspects may not have had a significant impact on the relationship between task complexity and learners' pragmatic performance on two written DCTs.

With regard to the relationship between language anxiety and pragmatic development, the findings showed that language anxiety had an impact on learner's pragmatic development in both simple and complex task conditions. To be specific, the current study found debilitative effect of language anxiety on learners' pragmatic development as measured by written DCTs. Overall, learners' scores on both immediate and delayed posttests decreased as learners' level of anxiety increased for all three types of language anxiety (i.e., input, processing, and output). This finding is generally in line with previous studies (e.g., Kim & Tracy-Ventura, 2011; Robinson, 2007) which also revealed that higher level of anxiety negatively correlates with learners' language development. However, the relationship between each type of anxiety and learners' pragmatic development was not uniform. For input and processing anxiety, there was significant negative linear relationship between the anxiety and immediate posttest but not for delayed

posttest. This may imply that the effect of learners' level of input and processing anxiety on the delayed posttest was more prominent in the immediate posttest and less so in the delayed posttest.

For output anxiety, on the other hand, no significant negative linear relationship was found between output anxiety and both immediate and delayed posttest, contradicting the prediction that the negative effect of output anxiety on the posttests would be larger compared to input or processing anxiety. This finding could be related to the written mode used in the posttests. If oral output was required, the output anxiety may have shown to be a significant factor affecting the learners' pragmatic gains. For example, Robinson (2007) investigated the relationships among task complexity, three types of anxiety (i.e., input, processing, and output), and learners' L2 speech production. His study showed the largest association between output anxiety and learners' L2 oral production compared to input and output anxiety. Output anxiety showed negative correlation with use of complex speech structures consistently in all task versions. The contradicting findings of the present study may be related to different types of tasks used in the two studies (i.e., oral narrative tasks in Robinson [2007] vs. written dialogue construction tasks in the current study) particularly in terms of their collaborative nature and modality of the task outcome. In Robinson's (2007), the treatment task was a one-way task where each learner's role was fixed; one learner was a speaker who had to decide on the correct order of the given pictures and narrate the story to the partner, and the other learner had to put the pictures in the order that his/her partner described. On the other hand, the dialogue construction tasks used in the current study were two-way tasks where both learners worked collaboratively and interacted with each other to create a task outcome (i.e., a written dialogue including a

refusal-making expressions). Since the treatment tasks and the posttests shared the same modality (i.e., writing) and similar format (i.e., creating a dialogue/sentence including a refusal expression for the given scenario), the practice effect and also the modality type (no need for online processing as performing) may have prevented the impact of output anxiety on learners' performance on the two posttests. As shown in research, although both speaking and writing are productive skills, speaking has been found to cause the highest level of anxiety and stress among the four language skills (Krashen, 2003), supporting Robinson's (2007) findings.

Finally, in order to confirm the actual cognitive differences between the simple and the complex task versions, the current study adopted three independent measures of task complexity: self-perception task difficulty questionnaire, time on task, and time estimation. Overall, these independent measures (except for time on task) validated operationalization of two task versions (i.e., simple and complex) with having two distinct levels of cognitive complexity. In the self-perception questionnaire, learners rated their perceived levels of task difficulty, stress, confidence, interest, and motivation on a 9-point Likert scale. Results of the self-perception questionnaire confirmed the prediction that the complex tasks are perceived to be significantly more difficult compared to the simple ones. In terms of the level of stress and motivation, no significant difference between the two treatment groups was found. The participants' perceived level of stress was similar for all tasks with an average of 3.70 (*SD* = 2.53) for Task 1, 3.30 (*SD* = 2.51) for Task 2, 3.37 (*SD* = 2.55) for Task 3, and 3.54 (*SD* = 2.34) for Task 4. The motivation level expressed by the learners was also similar among the treatment tasks with the mean scores of 7.80 (*SD* = 1.59) for Task 1, 7.54 (*SD* = 2.15) for Task 2, 7.46 (*SD* = 1.73) for Task 3, and 7.09 (*SD* = 2.03) for

Task 4. With respect to level of confidence in performing the tasks, learners who carried out the simple versions rated their confidence to be significantly higher than those who performed the complex versions for Task 1, 2, and 3 while no significant difference was found for Task 4. It was particularly noteworthy that the complex versions were rated to be more interesting than the simple versions for all four tasks but this difference between the simple and complex tasks was statistically significant for only Task 2 and 4 which included a PDR-high situation. Higher pragmatic demands in the complex version of Task 2 and 4 may have promoted more discussion around contextual variables between learners such as the relationship between the characters and the situation that the characters were in, possibly making them more interesting to perform.

With regard to the amount of time taken to complete the tasks, the prediction was not confirmed as no significant difference was found between the simple and complex tasks. Based on findings of previous studies (e.g., Gilabert & Barón, 2013), it was expected that the complex version of each task would take significantly longer time for participants to perform than the simple version as cognitive complexity was the only variable that differed between the two versions of the tasks. Learners in the complex group took slightly longer to complete their complex tasks versions compared to those in the simple group who carried out the simple task versions, but the difference was not statistically significant for any of the tasks. This result may be due to the effects of learners' individual differences. In the present study, one group of learners carried out the simple task versions and another group of learners performed the complex task versions unlike in Gilabert & Barón's (2013) study where the same group of participants carried out both simple and complex task versions. Therefore, even though there was no significant difference in

learners' language proficiency in the two treatment groups (i.e., simple and complex), other individual learner variables may have influenced the length of time taken to complete each task in addition to the cognitive load of each task. On the other hand, the current study confirmed the hypothesis related to time difference score that the complex version of the tasks would be perceived as taking longer than the actual time taken to complete the tasks compared to the simple version. This indicates that learners who carried out the complex task versions engaged in larger cognitive load compared to those who completed the simple task versions.

Findings of the study raises several important issues for the Cognition Hypothesis in SLA and has pedagogical implications for implementing task-based pragmatics interaction and instruction in classroom contexts. To date, there has been a limited number of studies which investigated the relationship between task complexity and learners' learning outcomes particularly in pragmatics (Gilabert & Barón, 2013; Kim & Taguchi, 2015, 2016; Taguchi, 2007). The current study aimed to expand the previous research on Cognition Hypothesis by examining the effect of task complexity on L2 learners' pragmatic development. The findings demonstrated a positive effect of higher cognitive task complexity on learners' use of appropriate refusal expressions in the immediate posttest as well as a strong positive long-term effect of task-based interactions on learners' pragmatic development in the speech act of refusals. Furthermore, the present study intended to provide empirical evidence on the role of learner variables (i.e., language proficiency and language anxiety) in relation to task complexity and L2 learning by testing the interaction effect between task complexity and individual differences on learners' pragmatic development. The findings of the present study could not find significant

interaction effect between task complexity and learner variables (i.e., learner proficiency and language anxiety) on learners' pragmatic development possibly due to the degree of importance of sociopragmatic aspects in developing pragmatic competence. In the current study, the written DCTs measured learners' appropriate use of the refusal strategy rather than their linguistic accuracy or complexity when assessing learners' pragmatic development. Thus, other learner variables related to sociopragmatics such as learners' ability to understand the context and social and cultural norms of the target speech community or even level of their social anxiety may have had greater influence on their performance. As task complexity is unlikely to have its effects independently of these learner variables (Robinson, 2007b), further studies are needed which investigate various ability and affective factors, particularly related to pragmatics (e.g., intercultural competence, interpersonal intelligence, emotional intelligence), in order to provide a clearer picture on how these learner variables may play a role in learners' pragmatic development.

In the area of instructional pragmatics, findings of the current study suggest that task-based pragmatic interaction particularly using collaborative pragmatic tasks can be an effective instructional method in promoting learners' pragmatic development. Both treatment groups who carried out collaborative pragmatic tasks with a partner showed significant improvement in using appropriate refusal strategies. During the process of co-constructing a dialogue including the target speech act, learners benefit from repeated use of the target speech act as well as interaction with their partner. Future studies should employ pragmatic tasks targeting various pragmatic targets and examine effects of collaborative pragmatic tasks on learners' pragmatic development in classroom setting

combined with other instructional methods (e.g., explicit vs. implicit). Furthermore, findings of the current study revealed beneficial role of low anxiety in pragmatic development. Although learner variables such as their language anxiety may not be useful in priori decisions on designing and sequencing tasks, they provide valuable information to the teachers in making on-line decisions in classrooms. Teachers should try to lower learners' anxiety by creating a comfortable classroom environment where learners feel relaxed and motivated to learn. Particularly during task-based pragmatic instruction, a careful consideration should be given to grouping learners with different levels of anxiety as well as language proficiency (Robinson, 2001a).

4.7. Conclusion

The present study enhances our knowledge our understanding of the effect of task complexity on pragmatic development related to refusal speech acts as well as the role of individual learner differences in moderating the relationship between task complexity and pragmatic development. The findings demonstrated benefits of employing collaborative pragmatic tasks to promote pragmatically related interactions in both sociopragmatic and pragmalinguistic areas and learners' pragmatic development. However, findings of the current study did not consistently support predictions of the Cognition Hypothesis regarding the interaction effect between task complexity and individual learner variables such as learner proficiency and language anxiety. Therefore, further research is needed which explores the interaction among task complexity, learner variables, and L2 learning based on Robinson's framework.

When interpreting the findings of the current study, its limitations should also be acknowledged. First, participants in the current study engaged in the treatment tasks (a

total of four tasks) for only two days, which may have made it difficult to observe the effect of carrying out pragmatic tasks with varying degrees of cognitive complexity on learners' pragmatic development with longer treatment durations. Therefore, future studies should employ longer durations for task-based pragmatic interactions (e.g., a semester-long study in Kim, 2009b). More studies also need to consider adding task-based pragmatic instructional strategies combined with other methods of pragmatic instruction (e.g., explicit vs. implicit) in order to draw a clearer picture of the effects of engaging in collaborative pragmatic tasks with different levels of cognitive complexity on pragmatic development. However, it is still noteworthy that the treatment groups in the current study showed superior performance compared to the control group only after two days of engaging in treatment tasks, revealing effectiveness of collaborative pragmatic tasks in promoting pragmatic competence. In addition to the short length of the treatment, relatively small number of participants in the current study may have made it difficult to achieve statistically significant results. Future studies including larger number of participants may be able to add more insights on the relationship between task complexity, individual learner variables, and L2 pragmatic development.

4.8. References

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5. CONCLUSIONS

The current dissertation provided a systematic investigation of Robinson's Cognition Hypothesis (1995, 2001a, 2001b, 2003, 2005, 2007, 2011) as well as empirical evidence to his predictions in terms of: a) the role of increased cognitive complexity along resource-directing dimensions in facilitating learner-learner interaction during task performance, higher quality task performance, and subsequent L2 development, and b) individual learner differences interacting with task-related variables contributing to the cognitive demands of a task and influencing the effect of task complexity on learner-learner interaction and L2 development. Through one systematic review and two empirical investigations, task complexity effects were investigated in L2 pragmatic development in order to expand the theoretical scope of task complexity framework. In this final chapter, a summary of the three studies will be presented along with their theoretical and pedagogical implications, limitations, and recommendations for future studies.

5.1. Summary of Findings

Chapter Two provided accumulated findings on Robinson's Cognition Hypothesis by synthesizing previous studies which examined the effects of increasing resource-directing task demands on promoting learner-learner interaction and L2 development. Various learner-related (e.g., L2 proficiency) and task-related factors (e.g., task type, task sequence, task modality) were also explored to find out how they may affect the relationship between task complexity, learner-learner interaction and L2 development. The study included 15 empirical research studies (i.e., nine peer-reviewed journal articles, three book chapters, two doctoral dissertations, and one master's thesis). The included studies were analyzed based on task features including task types, task conditions, and

operationalization of task complexity, measures of interaction, and measures of L2 development.

Findings revealed somewhat conflicting results regarding the role of task complexity in generating more interaction-driven learning opportunities depending on the types of interactional measures used and different learner-related (e.g., L2 proficiency) or task-related (e.g., task type, sequence of tasks, task modality) variables included in the studies. In addition, examination of a subset of the studies (n=6) generally provided positive evidence for the prediction of the Cognition Hypothesis on the relationship between task complexity, learner-learner interaction, and subsequent L2 development. However, characteristics of the target linguistic form and the assessment type used to measure L2 development were found to influence this relationship.

Furthermore, various methodological issues in examining the effect of task complexity were found. First issue was related to validation of task complexity across tasks that were designed to be less or more cognitively demanding, suggesting importance of adopting methods to independently measure cognitive task complexity. Second, several studies showed inconsistent operationalizations of task complexity, which could result in findings that are open to question. Future studies should operationalize task complexity clearly and consistently following Robinson's framework. Finally, findings revealed importance of considering various learner- and task-related factors as they can influence interaction between learners and their task performance.

Chapter Three provided an empirical evidence to the relationship between cognitive task complexity, pragmatic task demands, and interaction-driven learning opportunities operationalized as pragmatic-related episodes (PREs) during task performance. In addition

to examining the effects of these task design variables (i.e., cognitive and pragmatic task complexity), one of the task condition variables (i.e., pair-grouping based on learners' L2 proficiency) was examined in terms of how this variable may impact the occurrence of PREs during pragmatic tasks and learners' task performance. Learners in the cognitively simple and complex task groups carried out a total of four written dialogue construction tasks with a partner including two pragmatically demanding (PDR-high) and two pragmatically simple versions (PDR-low).

Overall, the predictions of the Cognition Hypothesis were confirmed with regard to tasks with higher cognitive demands promoting larger amount of interaction while learners carry out collaborative pragmatic tasks. Learners who carried out the complex task versions produced significantly greater number of PREs compared to those who worked on the simple task versions. However, no significant difference was found between the two groups in number of turns within each PRE. Similarly, the main effect of cognitive complexity did not show a statistically significant difference in learners' task performance scores between the simple and complex groups. Regarding the effects of pragmatic task demands on facilitating learner-learner interaction and their task performance, no significant difference was found between the PDR-high and PDR-low task versions for both cognitive task groups.

When occurrence of interactional features and learners' task performance were compared across different proficiency pairs (i.e., low-low, low-high, high-high), the findings only partially supported the predictions of the Cognition Hypothesis. No significant main effect of pair-grouping based on L2 proficiency was found for number of PREs while significant main effect was found for number of turns within each PRE.

Learners engaged in significantly longer turns within each PRE as their proficiency increased (low-low<low-high<high-high). Regarding different proficiency pairs' task performance score, no statistically significant difference was found among the three pair-groups. Finally, in contrast to Robinson's predictions, no significant interaction effect was found among cognitive task complexity, pragmatic task demands, and pair-grouping based on L2 proficiency on the amount of learner-learner interaction and their task outcome.

Chapter Four explored whether task-complexity increased along resource-directing dimension leads to development of pragmatic competence and how this relationship may be moderated by various learner-related variables, including learners' L2 proficiency and level of three types of language anxiety (i.e., input, processing, and output anxiety [IPOAS]). Following previous researchers' call for independently measuring the construct of task complexity, operationalization of the task complexity was also evaluated using three measures (i.e., self-perception questionnaire, time on task, retrospective time estimation) in order to verify if the designed difference in task complexity matches the actual cognitive load perceived by the learners. Overall, these independent measures (except for time on task) validated operationalization of two task versions (i.e., simple and complex) with having two distinct levels of cognitive complexity.

In terms of the effects of task complexity on L2 pragmatic development, a strong positive effect of collaborative pragmatic tasks was found on learners' pragmatic development in terms of learning of refusal-making expressions. Learners in both treatment groups (i.e., simple and complex) showed a significant improvement from the pretest to the immediate posttest and maintained their gains one week after the treatment. Furthermore, the findings revealed immediate effect of higher cognitive demands on L2

pragmatic development as demonstrated by the complex group's significantly higher score on the immediate posttest compared to the control group but not the simple group. No significant difference was found between the simple and the complex group at the immediate posttest. However, learners in both treatment groups performed significantly higher than the control group at the delayed posttest, suggesting beneficial role of engaging in collaborative pragmatic tasks regardless of the level of cognitive task complexity.

Findings of the current study did not support our initial prediction regarding the interaction effect between task complexity and individual learner differences in language proficiency and language anxiety based on the Cognition Hypothesis. Irrespective of cognitive complexity of the tasks, learners received higher scores on both immediate and delayed posttests as their proficiency increased. In terms of the role of three types of language anxiety on learning of refusal expressions, no statistically significant interaction effect between task complexity and three types of language anxiety on learning of refusal strategies. In line with previous studies, debilitative effect of language anxiety on learners' pragmatic development was found as measured by written DCTs.

5.2. Implications of the Dissertation

Findings of the current dissertation raises several important implications for the Cognition Hypothesis in SLA as well as pedagogical implications for implementing task-based pragmatic instruction in classroom contexts. First, there has been limited research on Robinson's Cognition Hypothesis in the field of instructed pragmatics. Only few studies have examined the relationship between task complexity, interaction-driven learning opportunities during task performance and learners' learning outcomes in pragmatics (Gilabert & Barón, 2013; Kim & Taguchi, 2015, 2016). Thus, the current study aimed to

expand the previous research on Cognition Hypothesis by examining the effect of both cognitive and pragmatic task complexity on learner-learner interaction as well as their L2 pragmatic performance. Findings of the study supported the predictions of the Cognition Hypothesis in terms of tasks with higher cognitive complexity promoting larger number of interactional features regardless of their pragmatic demands. As a measure of the quality of each interactional feature (i.e., PRE), number of turns per PRE was analyzed. However, no statistically significant difference was found in the length of each interactional feature (i.e., number of turns within each PRE) between the cognitively complex and simple task version. As it may not be sufficient to simply compare the quantity of interactional features occurred during task performance, future studies also need to investigate quality of interaction-driven learning opportunities by including additional measures such as number of turns per LRE and resolution of LREs (Kim, 2009a). In the present study, learners' task outcome (i.e., a completed dialogue following the dialogue construction task) was used to evaluate whether pragmatic-related episodes (PREs) were correctly resolved and the findings did not show significantly different score between the two task complexity conditions. Both simple and complex task groups received high appropriateness scores, indicating successful task performance in both cognitive task conditions. By considering the quality of these learning opportunities in addition to their quantity, these studies could provide richer information on the role of task complexity in generating larger number of and also more meaningful learning opportunities, which may result in L2 learning.

In terms of learners' L2 pragmatic development, the findings revealed an immediate positive effect of higher cognitive complexity on learners' use of appropriate refusal expressions, partially supporting the predictions of the Cognition Hypothesis. At

the immediate posttest, participants in the simple task group did not perform significantly higher than those in the control group while learners in the complex task group performed significantly higher than the control group participants. In the long term, however, engaging in collaborative pragmatic tasks can be beneficial for learners' pragmatic development regardless of the level of cognitive complexity as evidenced by both treatment groups' (i.e., simple and complex) significantly higher scores in the delayed posttest compared to the control group. Participants in both treatment groups also showed significant improvement from the pretest to the immediate posttest and maintained their learning gains in the delayed posttest. These findings suggest that task-based pragmatic instruction particularly using collaborative pragmatic tasks can be an effective instructional method in promoting learners' pragmatic development. During the process of co-constructing a dialogue including the target speech act, learners could benefit from repeated use of the target speech act as well as interaction with their partner. These findings partially confirmed predictions of the Cognition Hypothesis that tasks with higher cognitive demands facilitate longer retention of the target form as learners in both simple and complex task group maintained their learning one week after the treatment. It is also noteworthy that learners who carried out collaborative pragmatic tasks showed significant improvement in their appropriate use of refusal expressions even without any explicit pragmatic instruction unlike Kim & Taguchi (2015). This provides empirical evidence to the effectiveness of implementing collaborative pragmatic tasks on facilitating learners' pragmatic learning and suggests potential for implementing task-based language teaching syllabus in classroom contexts to promote L2 pragmatics development.

Furthermore, findings of this dissertation have implications on assessment of learners' task performance in task-based language teaching, particularly in pragmatic tasks. Due to characteristics of pragmatics, assessing learners' task performance in pragmatic tasks in terms of its appropriateness could be challenging as appropriate use of speech acts can vary across different contexts and even cultures. This is more evident in tasks targeting particularly face-threatening speech acts such as refusals in which power relationship and distance between the interlocuters have a significant impact on performance of the speech act. In the current study, several participants showed discomfort when creating a dialogue for a task involving a PDR-high situation (i.e., refusing the boss's request to work for some extra hours) since it was considered inappropriate in their culture. These findings demonstrate the importance of carefully considering possible sociocultural differences that may exist among learners from different sociocultural backgrounds when assessing learners' pragmatic performance.

Within Robinson's task complexity framework, the current dissertation further investigated pair-grouping variable (based on learners' L2 proficiency) as one of task condition variables and demonstrated importance of considering this variable in designing tasks and implementing tasks in task-based classroom contexts. During the process of carrying out the treatment tasks, the largest amount of learner-learner interaction was found when both participants had high proficiency and the least amount was found when both had low proficiency. Particularly learners engaged in richer discussion in each PRE when they were paired with a high proficiency partner. Low proficiency learners, on the other hand, were not able to carry on long turns of discussion particularly when they were partnered with another low proficiency learner, possibly due to their limited linguistic as

well as pragmatic knowledge. These findings suggest that how to pair learners based on their proficiency can have a significant effect on the occurrence of interaction-driven learning opportunities. Therefore, various task condition variables such as pair-grouping should be carefully taken into account in addition to task-related variables (task complexity) in order to maximize the benefits of task-based language teaching. Future studies are further needed which examine different task condition variables and how they may interact with cognitive complexity of a task and affect occurrence of interactional features during task performance.

Another important implication of this study is that individual learner factors (e.g., L2 proficiency, language anxiety) that contribute to task difficulty as well as task-related variables can influence potential beneficial effects of increased cognitive complexity. The current study investigated the role of learners' L2 proficiency and their level of language anxiety in relationship between increased task complexity and their L2 pragmatic learning. Findings did not support our initial prediction regarding the interaction effect between task complexity and individual learner differences in language proficiency and language anxiety on learners' pragmatic learning, possibly due to sociopragmatic aspects of pragmatics learning. Findings of the current study, however, revealed beneficial role of low anxiety in promoting learners' pragmatic learning. Although learner variables such as language anxiety may not be useful in priori decisions on designing and sequencing tasks, they provide valuable information to the teachers in making on-line decisions in classrooms. Teachers should try to keep learners' anxiety low by creating a comfortable classroom environment where learners feel relaxed and motivated to learn (Kim & Tracy-Ventura, 2011). Again, this finding emphasizes the importance of careful consideration of

these individual learner variables when grouping learners in task-based language teaching classrooms. Future studies investigating the role of these individual learner variables in pragmatic learning should also consider other learner variables related to sociopragmatics such as learners' ability to understand the context and social and cultural norms of the target speech act or even level of their social anxiety. As task complexity is unlikely to have its effects independently of these learner variables (Robinson, 2007), there is a need for more studies which examine possible roles of these variables, particularly related to pragmatics, in order to provide a clearer picture on how these learner variables may play a role in learners' pragmatic development.

Finally, the present study has methodological implications in task complexity research as it supports importance of using more than one type of independent measure of cognitive complexity when investigating this construct. Following previous studies (Baralt, 2010; Gilabert & Barón, 2013; Robinson, 2001b; Sasayama, 2016), three measures were used to validate operationalization of the two cognitive task conditions (i.e., self-perception task difficulty questionnaire, time on task, and retrospective time estimation). Overall, these independent measures (except for time on task) validated operationalization of two task versions (i.e., simple and complex) with having two distinct levels of cognitive complexity. As suggested by Sasayama (2016, p. 233) we would be able to draw a conclusion on "whether cognitive task complexity leads to theorized effects on task performance and L2 development" only when we can confirm that our designed difference in task complexity matches the actual cognitive effort engaged in by the learner. Inclusion of various direct and objective techniques (e.g., dual-task methodology [Révész, Sachs, &

Hama, 2014; Sasayama, 2016], eye-tracking [Révész et al., 2014]) to independently measure the construct of task complexity is clearly warranted in future studies.

5.3. Limitations and Recommendations for Future Research

Although findings of the current dissertation add empirical evidence to the existing task complexity literature, its limitations should also be acknowledged in order to correctly interpret the findings. Based on these limitations, directions for future research will be suggested. First, the duration of the treatment for the current study was relatively short (i.e., only two days of engaging in treatment tasks) similar to the previous studies which examined the effects of task complexity on learner-learner interaction, task performance, and potential L2 learning (e.g., Gilabert & Barón, 2013; Gilabert, Barón, & Llanes, 2009; Révész, 2011; Robinson, 2001b; Kim & Taguchi, 2015, 2016). Participants in the study carried out a total of four tasks with a partner over two consecutive days but still showed significant improvement after engaging in the treatment tasks and maintained their learning gains after one week. This clearly demonstrates effectiveness of collaborative pragmatic tasks in promoting pragmatic learning of the target pragmatic features. However, the current study cannot address long-term instructional effects of task complexity on pragmatic learning. Future studies should implement more longitudinal design, preferably in classroom environments, in order to inform long term effects of task complexity in task-based instruction.

Furthermore, the study only investigated one pragmatic feature (i.e., refusals) as a target and employed a single task type (i.e., dialogue construction task) similar to previous studies on task complexity and pragmatics learning (e.g., Kim & Taguchi, 2015, 2016; Taguchi, 2007). Thus, findings of the study may not be generalized to L2 development of

other linguistic or pragmatic features and learners' task performance in different types of tasks. Future studies should implement various types of collaborative tasks that target various pragmatic features as task type can play a role in the relationship between task complexity and occurrence of interaction-driven learning opportunities (Gilabert et al., 2009; Kim, 2009a) and L2 learning (Kim, 2009b). In addition, the current dissertation only used one resource-directing variable (i.e., +/- few elements) to operationalize two different levels of task complexity. Previous studies on task complexity mainly looked at +/- here and now or +/- causal reasoning demands in Robinson's task complexity framework. More studies are needed on other task complexity variables such as +/-spatial reasoning, +/- intentional reasoning, as well as +/-perspective-taking. It would also provide deeper insights into his framework if future studies explore the effect of resource-directing demands in relation to various resource-dispersing variables, which impose performative and procedural demands on learners.

Within Robinson's Triadic Componential framework, exploration of task condition and task difficulty variables along with task complexity would also contribute to the research on the Cognition Hypothesis. The present study examined pair-grouping variable as one of task condition variables and found different amount of learner-learner interaction between different proficiency pair groups. Further studies are needed which explore the role of other participant variables such as +/- same gender (e.g., Ross-Feldman, 2007), +/- equal status and role (pair dynamics, see Kim & McDonough, 2008), and +/- shared cultural knowledge. As learner factors contributing to Task Difficulty, the current dissertation included learners' L2 proficiency and level of language anxiety and investigated how the effect of task complexity on L2 pragmatic learning may vary

depending on learners' proficiency and language anxiety. Future studies can examine other learner variables from Robinson's framework such as level of working memory, motivation, and aptitude and how these learner variables play a role in the relationship between increased task complexity and L2 pragmatics learning.

Finally, written discourse completion tests (DCT) used to measure learners' pragmatic development may pose restrictions on fully understanding learners' pragmatic learning of the target refusal strategies in the current study. In cross-cultural and interlanguage pragmatics, DCTs have been widely used to elicit learners' speech act production and measure learners' pragmatic knowledge on pragmalinguistic forms (e.g., Beebe, Takahashi, & Uliss-Weltz, 1990; Blum-Kulka, 1982; Blum-Kulka & Olhstain, 1984, 1986; Takahashi & Beebe, 1987). However, learner responses elicited by DCTs reflect their awareness of what they should say in the given context considering various contextual variables rather than what they would actually say in real settings. In other words, DCTs tap into learners' metapragmatic knowledge of what they 'believe' would be situationally appropriate in the given hypothetical situation rather than revealing their actual pragmatic performance in an interactional setting (Golato, 2003). Although the purpose of the study was to measure learners' pragmatic competence (i.e., knowledge of which linguistic forms to use in order to perform a language function [pragmalinguistics] considering the contextual factors [sociopragmatics]) rather than their actual pragmatic performance, addition of other types of production assessments (e.g., an oral role play) which can measure learners' ability to perform the target speech act in interaction could provide a better understanding of comprehensive capacity to use appropriate refusal speech

act in the given context. Future research may benefit from using multiple types of assessments to capture a full account of learners' pragmatic development.

5.4. Conclusion

The current dissertation illustrated potential benefits of collaborative pragmatic tasks on promoting interaction-driven learning opportunities during task performance and learners' L2 pragmatics development, extending the role of cognitive task complexity into pragmatics learning in task-based language teaching. Overall, the findings revealed long-term benefits of employing collaborative pragmatic tasks in classroom context in terms of promoting learners' learning of refusal speech act, confirming the predictions of Robinson's Cognition Hypothesis (1995, 2001a, 2001b, 2003, 2005, 2007, 2011). Learners engaged in meaningful and relevant discussions on both pragmalinguistic and sociopragmatic features particularly during pragmatic tasks that exert greater cognitive demands on learners regardless of the tasks' pragmatic demands. These findings suggest that implementing tasks that are carefully designed to promote learner-learner interaction would be beneficial for teaching pragmatics in classroom contexts.

The study has further contributed to the task complexity literature by taking into account how task condition and task difficulty variables under Robinson's triadic components may play a role in the relationship among task complexity, interaction-driven learning opportunities during task performance, and L2 pragmatics development. Investigation of the role of pair-grouping variable based on learner proficiency revealed positive effects of grouping learners with a high proficiency partner on promoting deeper discussion on pragmatic-related elements. When individual learner variables contributing to task difficulty (i.e., language proficiency and three types of language anxiety) were

examined, the current study was not able to find any interaction effect between task complexity and individual learner variables on learners' pragmatic learning, contradicting the predictions of the Cognition Hypothesis. Future studies should continue to examine various task condition and task difficulty variables in relation to task complexity in order to create effective L2 learning environments in task-based language teaching contexts. Future studies examining interaction between task complexity variables rather than investigating the effect of each variable in isolation will contribute to expanding our understanding on task complexity research.

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APPENDIX A

TASK 1 (A SIMPLE AND COMPLE VERSION)

<Simple>

Scenario: Look at the picture above. Maria and John are classmates who are taking the same English course together. They have a big assignment due next week. John asks Maria if she can help him with the assignment after school. However, Maria cannot help him because Maria has other works to do.

When refusing John's request, consider the following.

- John and Maria are close friends.

Discuss with your partner how Maria can politely refuse John's request in this situation and write a dialogue for this scene.

<Complex>

<u>Scenario</u>: Look at the picture above. Maria and John are classmates who are taking the same English course together. They have a big assignment due next week. John asks Maria if she can help him with the assignment after school. However, Maria cannot help him because Maria has other works to do.

When refusing John's request, consider the following.

- John and Maria are close friends.
- John does not have many friends at school.
- The assignment takes up 30% of the total course grade.

Discuss with your partner how Maria can politely refuse John's request in this situation and write a dialogue for this scene.

APPENDIX B

TASK 2 (A SIMPLE AND COMPLEX VERSION)

<Simple>

Scenario: Look at the picture above. Jennifer has been working at a restaurant as a part-time job to save some money to pay for her tuition. One day, her boss, Mr. Wilson, comes up to her and asks her to work for a few extra hours this weekend because the restaurant will be very busy. However, she cannot help him because she has other works to do.

When refusing Mr. Wilson's request, consider the following.

- Next Monday is Jennifer's payday.

Discuss with your partner how Jennifer can politely refuse Mr. Wilson's request in this situation and write a dialogue for this scene.

<Complex>

Scenario: Look at the picture above. Jennifer has been working at a restaurant as a part-time job to save some money to pay for her tuition. One day, her boss, Mr. Wilson, comes up to her and asks her to work for a few extra hours this weekend because the restaurant will be very busy. However, she cannot help him because she has other works to do.

When refusing Mr. Wilson's request, consider the following.

- Next Monday is Jennifer's payday.
- Jennifer loves her job and wants to continue working here until she graduates.
- Jennifer has been late to work several times this month.

Discuss with your partner how Jennifer can politely refuse Mr. Wilson's request in this situation and write a dialogue for this scene.

APPENDIX C

TASK 3 (A SIMPLE AND COMPLEX VERSION)

<Simple>

Scenario: Look at the picture above. Victoria and Emma are classmates who have been friends for more than 10 years. Victoria needs someone to take care of her dog tomorrow because she has to go to another city for an important interview. Victoria asks Emma if she can take care of her dog when she is away. However, Emma cannot help her because she has other things to do.

When refusing Victoria's request, consider the following.

- Victoria's dog does not like to be around strangers.

Discuss with your partner how Emma can politely refuse Victoria's request in this situation and write a dialogue for this scene.

<Complex>

Scenario: Look at the picture above. Victoria and Emma are classmates who have been friends for more than 10 years. Victoria needs someone to take care of her dog tomorrow because she has to go to another city for an important interview. Victoria asks Emma if she can take care of her dog when she is away. However, Emma cannot help her because she has other things to do.

When refusing Victoria's request, consider the following.

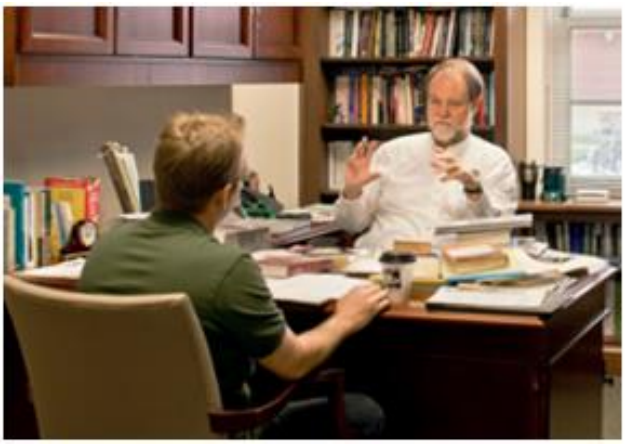
- Victoria's dog does not like to be around strangers.
- Emma is very familiar with Victoria's dog.
- Victoria's parents cannot take care of Victoria's dog because they live in a different city.

Discuss with your partner how Emma can politely refuse Victoria's request in this situation and write a dialogue for this scene.

APPENDIX D

TASK 4 (A SIMPLE AND COMPLEX VERSION)

<Simple>



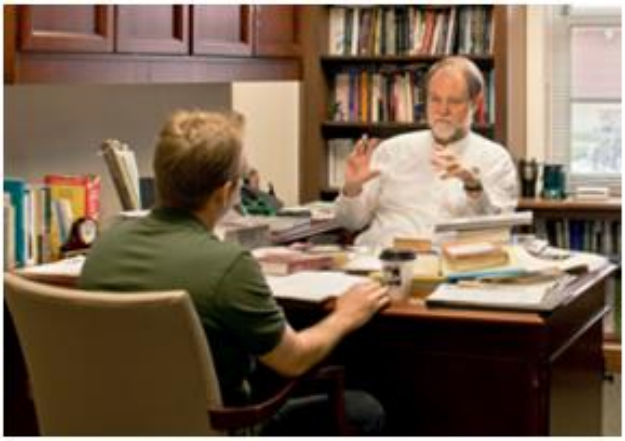
Scenario: Look at the picture above. Nathan is a college student, and Dr. Smith is a professor in the department of chemistry. One day, Dr. Smith asks Nathan if he can work as his teaching assistant next semester and help him with his course. However, Nathan cannot help him because he has other works to do next semester.

When refusing Dr. Smith's request, consider the following.

- Nathan has taken several of Dr. Smith's courses in the past.

Discuss with your partner how Nathan can politely refuse Dr. Smith's request in this situation and write a dialogue for this scene.

<Complex>



Scenario: Look at the picture above. Nathan is a college student, and Dr. Smith is a professor in the department of chemistry. One day, Dr. Smith asks Nathan if he can work as his teaching assistant next semester and help him with his course. However, Nathan cannot help him because he has other works to do next semester.

When refusing Dr. Smith's request, consider the following.

- Nathan has taken several of Dr. Smith's courses in the past.
- Nathan needs a recommendation letter from Dr. Smith to apply for a job.
- Nathan refused to help Dr. Smith on a chemistry project last semester.

Discuss with your partner how Nathan can politely refuse Dr. Smith's request in this situation and write a dialogue for this scene.

APPENDIX E

SAMPLE WRITTEN DISCOURSE COMPLETION TEST (DCT)

Name _____

Directions: Imagine that you are in the scenario and talking to the person in English. Write exactly what you would say in the situation.

1.	You are a student at a university and you have an English final exam next week. However, you lost your English notes from your English class. You want to ask your classmate whether you can borrow his/her notes to make a copy of them. What would you say to your classmate? _____
2.	Your friend asks you to go see a movie this Saturday. You two are very close friends. However, you need to study for your upcoming TOEFL test, so you cannot go. What would you say to your friend? _____
3.	You are a teaching assistant in the Department of English, and you have a good academic relationship with your professor. You are about to leave your office because you have plans with your friends. You run into your professor and he/she asks if you can stay for a few hours to help him/her grade students' essays. However, you cannot help him/her. What would you say to your professor? _____
4.	You are a student at a university. You are on your way to your class, and you are stopped by another student who is in the same department as you. He/she asks you to fill out a 20-minute survey for his/her project. However, you do not have time to help him/her. What would you say to him/her? _____
5.	You are a student at a university. You were required to submit your final English essay to your professor as an attachment in your email. You sent an email to the professor several days before the due date. However, you find out that you forgot to add your essay as an attachment in your email.

	What would you say to your professor? _____
6.	You are a student at a university. One of your classmates has been sick and has not been able to attend classes. He/she asks if you can help him/her after school to finish his/her assignments. However, you do not have time after school to help him/her. What would you say to your classmate? _____
7.	You are a graduate student at a university, and you have been working as a teaching assistant since last year. One day, your professor comes up to you and asks if you can work as a teaching assistant for his/her course in the upcoming summer semester. However, you cannot help him/her because you have other plans this summer. What would you say to the professor? _____
8.	You are a student at a university. You are walking toward the parking lot to drive home. Another student approaches you and asks you if you can give him/her a ride home saying that you both live in the same apartment. However, you have never met that student before so you don't want to help him/her. What would you say to the student? _____
9.	You are a graduate student at a university. You have an important meeting with your advisor in 30 minutes, so you are about to head to school. However, you find out that you have a flat tire. Luckily, one of your friends sees you in the parking lot and says he/she can give you a ride to school. What would you say to your friend? _____
10.	You are a university student. This semester you are taking a science lab class. One day, your professor comes up to you and asks you to come to the class 30 minutes early tomorrow to help him/her set up the classroom and prepare materials for the lab experiments. However, you cannot help him/her. What would you say to your professor? _____

11.	You decide to go to a nice restaurant with your fiancé to celebrate your anniversary. You choose the restaurant that is known to be the best in town for their seafood. You arrive at the restaurant around 6:00 pm and make an order. You wait for more than an hour but still your food is not here. What would you say to your waiter/waitress? _____
12.	You are working at a restaurant for a part time job. One of your close friends also works there. You work from Monday through Friday, and your friend works on weekends. One day your friend comes up to you and asks if you can work instead of him/her this coming weekend. However, you cannot help him/her because you have other plans. What would you say to him/her? _____
13.	You are a part-time worker at a department store. One day, your boss comes up to you and asks you if you can give him/her a ride home after work because his/her car is in a repair shop. However, you cannot help him/her because you have other things to do after work. What would you say to him/her? _____
14.	You order a new smart phone at an online marketplace. The website clearly says it is a new device. After you receive the phone, however, you find out that it is a used phone. You decide to call the customer service department and report this issue. What would you say to the customer service representative? _____
15.	You are a student worker in the Department of English. One of the professors in the department gives you three documents and asks you to make 100 copies of each in two hours. However, you have a class and cannot do it in two hours. What would you say to him/her? _____