

# PEER INTERACTION IN THE L2 CLASSROOM: A STUDY AMONG MALAYSIAN ESL LEARNERS

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## ABSTRACT

Adopting a cognitive-interactionist perspective, this study focused on peer interaction in the L2 classroom. It explored types of peer interaction in terms of Negotiation of Meaning (NoM), Language-related Episodes (LRE) and Uptake of Recast that tend to prevail during task discussions in the L2 classroom. This study also assessed whether task complexity and task condition influenced L2 peer interaction. Thirty-six (N=36) Malaysian university students learning English as a second language participated in this study. The tasks were designed at two levels of cognitive complexity, namely, simple tasks with two causal reasoning demands and complex tasks with six causal reasoning demands. Each participant was involved in peer discussion sessions of simple and complex tasks in dyadic and triadic groupings. The findings revealed that clarification requests during the NoM were the most prominent feature of the peer interaction. A paired sample t-test showed that statistically significant difference was detected between the dyadic and triadic settings for the comprehension check feature (NoM), the incorrectly resolved episodes (LRE) and the unmodified uptake of recast. The article concludes with a discussion of theoretical and pedagogical implications from these findings.

**Keywords:** task complexity; task condition; Cognition Hypothesis; negotiation of meaning; language-related episodes; uptake of recast

## **Introduction**

Investigating the effects of task complexity on peer interactions in the context of a second (L2) or foreign language classroom has been a prominent research area. A considerable number of studies have employed the Cognition Hypothesis developed by Robinson (2001a, 2001b, 2003b, 2005, 2007, 2010) as a theoretical framework. The Cognition Hypothesis postulates that cognitively more complex tasks would enhance peer interaction, heighten language learners' attention to the linguistic input and stimulate their memory. It predicts that cognitively more complex tasks prod the language learners to recall input more effectively and with a higher incorporation of salient and more complex linguistic forms.

Many early studies have examined the influence of task complexity and different task types on peer interaction in terms of Negotiation of Meaning (NoM) and Language-related Episodes (LREs) (Gilabert et al., 2009; Kim, 2012; Kim et al., 2015; Kim & Taguchi, 2016; Michel, 2011; Michel et al., 2007, 2012; Nuevo, 2006; Révész, 2009; Robinson, 2001b, 2007; Solon et al., 2017). Some empirical investigations included analyses of the interactional features produced by L2 learners with different backgrounds (Dobao, 2014a, 2014b; Dobao & Blum, 2013; Philp et al., 2013; Sato & Ballinger, 2016; Taguchi & Kim, 2016).

Recognising that task complexity and task condition are critical factors in designing pedagogical tasks in the L2 classroom, the current study examined the extent to which features of task complexity and task condition affected L2 peer interaction not only in terms of NoM and LREs but also from the aspect of Uptake of Recast. This study manipulated task complexity (i.e., causal reasoning demands: causes and effects) and task condition (i.e., number of participants in the peer interaction: dyadic and triadic) in order to examine interactional features among the L2 learners. This study adopted the Cognition Hypothesis as a theoretical framework. The following section gives an overview of the Cognition Hypothesis and discusses some relevant empirical studies.

## **Literature Review**

### ***The Cognition Hypothesis***

The Cognition Hypothesis explain the connection between cognitive complexity inherent in a task and cognitive processing of linguistic features during L2 production by language learners (Robinson, 2003b, 2005, 2007). Baralt et al. (2014) proposed that increasing task complexity in resource-directing, as opposed to resource-dispersing, dimensions would create more opportunities for language learning and peer interaction, and enhance the uptake and long term memory of forms made salient in the task-input. This is achieved through proactive (e.g., pre-modified input floods) and reactive (e.g., recasts) focus on the form techniques. The complexity of a task can be adjusted by

manipulating either the resource-directing or resource-dispersing features, or both of these dimensions.

However, communication breakdowns are inevitable during interactive activities in the L2 classroom (Robinson, 2003b). To solve these communication issues, the language learners would resort to making a number of interactional moves, including the NoM, LREs and Uptake of Recast. Previous studies have shown that language learners would engage in more NoM when they are involved in the more complex tasks (Robinson, 2011). Such episodes would create affordances for the learners to notice their own as well as their peers' gaps in the linguistic knowledge (Gilbert et al., 2009; Kim, 2012; Révész, 2009). As Robinson (2003b) proposed, regardless of the task conditions (i.e., the number of peers), the cognitively more complex tasks involve more of the peer interaction, have more of the negative feedback, LREs and uptake of recasts compared to comparatively simple tasks.

### ***Types of Interactional Moves***

Peer interaction in the context of task-based language learning and teaching refers to any conversation created by the language learners when working on a linguistic task. Interaction with the peers prior to or during the task provides a platform for the learners to seek assistance, to become aware of their lack of knowledge and to receive information regarding the correctness or incorrectness of their utterances (Gass & Mackey, 2007; Robinson, 2003a). During the L2 interactions, the language learners would employ various interactional. These moves include NoM and its interactional features, such as Comprehension Checks, Clarification Requests and Confirmation Checks (Long, 1981). In addition, a meta-talk in the form of LREs would take place when the learners discuss or question language rules or linguistic forms related to the language they had produced (Swain & Lapkin, 1998).

Among the types of interactional moves, NoM occurs when there is a breakdown in a communication which leads to the interlocutors to amend the communication impasse (Ellis, 2012; Long, 1996). LRE is "any part of a dialogue in which students talk about the language they are producing, question their language use, or other- or self-correct" (Swain & Lapkin, 1998, p.326). Self-correction is similar to the self-repair feature identified by Schegloff et al. (1977), except that repairs capture more general domains of occurrences where no apparent errors might be in evidence. The LREs are measured by correctly LREs, incorrectly LREs and unresolved LREs whereas the uptake of recasts is measured by modified uptake, unmodified uptake and no uptake. Finally, Uptake of Recasts refers to learners' responses to comprehensible input (Lightbown, 1998).

### ***Empirical Studies on Task Complexity and Peer Interaction***

An early influential study by Robinson (2001b) manipulated task complexity with +/- number of elements and references. The researcher discovered that the complex task had led to a higher number of NoM, such as comprehension checks and clarification requests. These results were confirmed, even if partially, by other researchers (Gilabert et al., 2009; Nuevo, 2006; Robinson, 2007). Nuevo (2006) found that the more complex task had induced a greater number of NoM, such as confirmation checks and comprehension checks, as well as a greater amount of the LREs, such as self-repairs. In a similar way, Robinson (2007) discovered that increasing the task complexity had progressively elicited a higher number of clarification requests and confirmation checks.

To assess the impact of task complexity on peer interaction, Révész (2009) manipulated task complexity with having or not having a visual support for completing the task. Gilabert et al. (2009) pursued the same objective by manipulating the number of elements and reasoning demands. The findings of these studies indicated that the level of task complexity made a strong impact on most of the NoM and LREs measures, particularly on the clarification requests, comprehension checks and repairs. Recast was found to be more productive when it occurred in the more complex tasks. This supported the Cognition Hypothesis. Kim (2012) examined the effect of task complexity on the occurrence of interaction-driven learning opportunities. The results indicated that the more complex tasks involved a greater number of LREs.

In a more recent study, Kim et al. (2015) manipulated task complexity by +/- reasoning demands and task difficulty. They discovered that language learners' working memory was the only significant predictor of the amount of noticing of recasts and of the learners' ability to formulate their own questions. In a subsequent study by Kim and Taguchi (2016), task complexity was manipulated with +/- reasoning demands and pragmatic situational demands. Their study revealed that task complexity facilitated pragmatic-related episodes. No difference was detected in the quality of task outcome between the simple and complex tasks, regardless of the level of pragmatic task demands. Effects of task complexity on L2 pronunciation was explored by Solon et al. (2017) who manipulated the number of elements with regard to pronunciation-focused LREs and accuracy of phonetic form. No statistical difference between the simple and complex tasks was found to exist in the learner-produced pronunciation-related LREs.

### ***Empirical Studies on Task Condition (Number/Grouping of Participants)***

Most previous studies have conducted investigations that manipulated the number of group members. Dobao and Blum (2013) examined L2 learners' attitudes and perceptions toward collaborative writing. The participants were separated in pairs and small groups. Those working in groups reported that they had more opportunities for language development. In another study, Dobao (2014a) examined the effects of the number of group participants (i.e., pairs and small groups) on the frequency, resolution,

and length of LREs. The findings revealed that the students working in both settings had focused their attention on the form relatively often. However, the students working in groups had produced a significantly larger number of past tense LREs and were more successful at solving them.

In a subsequent study, Dobao (2014b) compared the opportunities that pair- and group of four peer interactions offer for constructing collaborative dialogues in terms of lexical LREs. The researcher found that the groups of four had produced a greater number of lexical LREs and higher percentage of correctly solved LREs. While examining the LREs, Kim (2012) discovered that increasing task complexity had led to a higher number of LREs by higher proficiency learners, which led to a more advanced question structure. Findings from a later study by Kim et al. (2015) suggested that an increased task complexity was a more effective strategy for higher proficiency learners.

Some studies did not give empirical support to the Cognition Hypothesis. For example, Kim and Taguchi (2016) found that task complexity produced no difference on the quality of linguistic production. Likewise, Michel (2011) reported that no effects were found when the task cognitive complexity was increased. Focusing on collaborative learning, Dobao and Blum (2013) concluded that pair groupings enabled a greater and more active participation of the L2 learners in peer discussions.

In sum, previous studies on task partially supported the claim that increasing task complexity would positively affect the interactional features in L2 peer interaction. Studies over the past two decades have consistently revealed that task complexity had not been manipulated with the number of causal reasoning demands with the aim to examine its effects on L2 peer interaction. More research is required in this direction. Such research may examine the effects of task condition on peer interactional features when the variables are manipulated with different levels of task complexity (i.e., +/- causal reasoning demands). The current study addressed this gap. It attempted to investigate the effects of task complexity (number of causal reasoning demands: causes and effects) and task conditions (number of participants: dyad, triad) on L2 peer interaction.

The current study sought to fill the gap in the research literature and to validate the Cognition Hypothesis (Robinson, 2001a, 2001b, 2003b, 2005, 2007) by examining the effects of task complexity and peer grouping on peer interaction. Investigating effects of task complexity on the interactional features (i.e., NoM, LREs and Uptake of recasts) in different task conditions is a worthwhile endeavour because these interactional features are not mutually exclusive as conversational strategies. This study was conducted in a large private Malaysian university among students who were learning English as a second language (L2). It raised the following research questions:

- (1) What types of interactional features tend to prevail in L2 peer interaction?
- (2) Is there a statistically significant effect of task complexity on L2 peer interactions in terms of NoM, LREs and Uptake of Recast?

Answering these questions would contribute to the theory testing and have some pedagogical implications. The novelty of this study is that it focused on the features of peer interactions per se, including the NoM, (LREs and Uptake of Recast.

## **Methodology**

### ***Participants***

Thirty-six ( $N=36$ ) participants were recruited using purposive sampling. The following criteria were set: (1) the participants must be L2 learners of English; (2) they must have obtained at least Band 3 of the Malaysian University English Test (MUET); and (3) they must be students in a local university. The students who took part in this study pursued their undergraduate studies in a variety of social sciences and pure sciences disciplines.

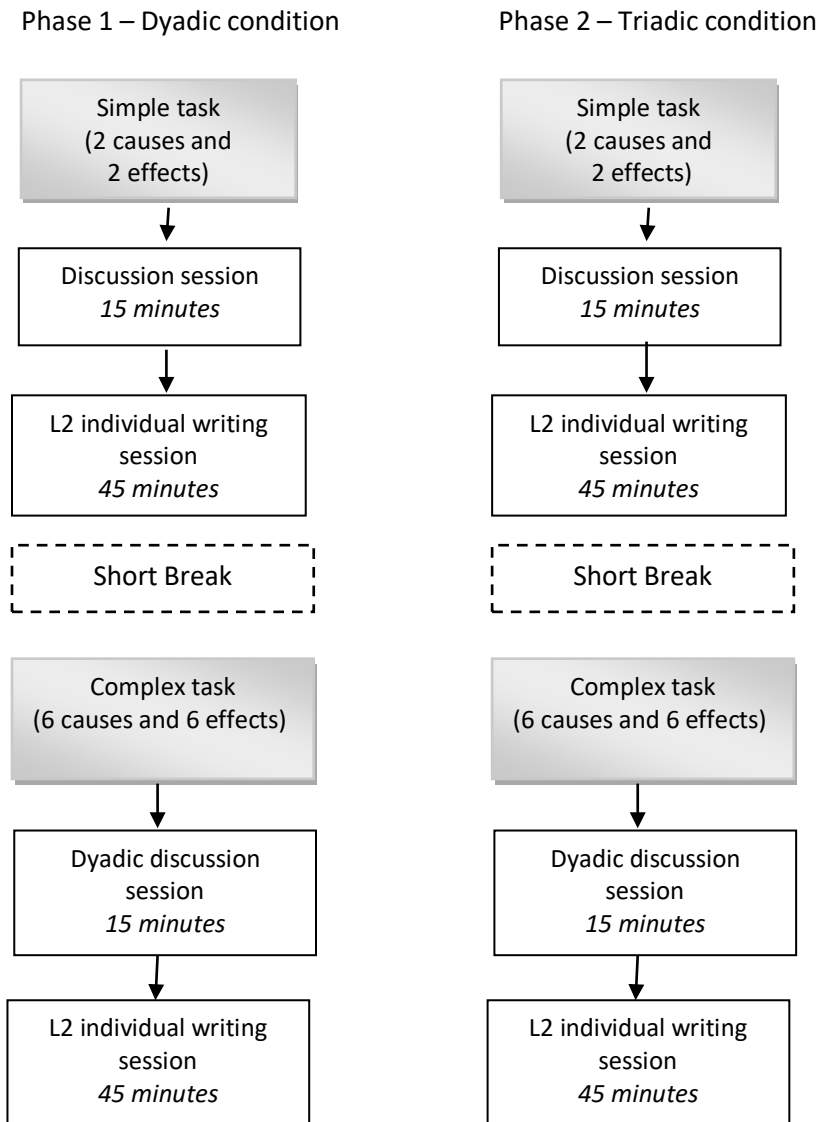
### ***Materials and Instruments***

Prior to the actual study, several pilot studies were conducted and necessary adjustments (e.g., pertaining to the topics and proficiency level of the participants) were made based on their findings. In the current study, the argumentative essay topics were adapted from the IELTS Task 2. They were: "Having good grades does not determine success in life" (Topic 1), "Using mobile phones in class brings more advantages than disadvantages" (Topic 2), "Teenagers should be given more freedom by their parents" (Topic 3), and "Technological interventions cause more harm than good in human life" (Topic 4).

### ***Data Collection Procedure***

This study has a quasi-experimental research design. Prior to writing their individual essays on the four topics, each of the 36 participants was involved in the dyadic and triadic discussion sessions. In total, 18 dyadic and 12 triadic groups were formed. The participants were required to discuss two causes and two effects during a simple task. This was followed by a discussion of six causes and six effects during a complex task. The goal of the discussion sessions was to prepare the participants to produce their individual argumentative essay. The data collection procedure is presented in Figure 1. To ensure the experiment set-up remained the same between the simple and complex tasks, the researcher assigned and monitored the time allocated for the entire task completion, discussion and L2 individual writing (see Figure 1).

**Figure 1**  
*Data Collection Procedure*



The period of data collection lasted approximately six weeks: Phase 1 and Phase 2 lasted two weeks each and there was a two-week interval between the phases.

**Peer Interaction Measures and Their Operationalizations**

The operationalisations of the variables in this study are grounded in the literature on interactional features in the L2 classroom (Ellis & Barkhuizen, 2005; Leeson, 2004; Long, 1981, 1996; Spada & Lightbown, 2009; Swain & Lapkin, 1998; VanPatten & Williams, 2007). The definitions of interactional features, their measurements and some examples from the qualitative data are given in Tables 1, 2 and 3. In this study, the NoM is defined as the interactions between L2 peers where the interlocutors make adjustments to their speech and use various techniques to repair an occasional breakdown in communication (Spada & Lightbown, 2009). It is measured by Confirmation Checks, Clarification Requests and Comprehension Checks (see Table 1).

**Table 1**  
*Measures of NoM*

Definitions	Excerpts from peer interactions
<p><i>Confirmation Check</i> Any expression produced immediately following an utterance by the speaker. It is produced in order to elicit confirmation that the utterance had been correctly heard or understood. It involves repetition, with a rising intonation, which requires no new information from the speaker.</p>	<p>F: It will disrupt, disrupt during the classes-lah. JX: <b>Disrupt</b> yea...? (<i>confirmation check</i>) F: They receive any messages, it will disrupt [the entire process...]</p>
<p><i>Clarification Request</i> Any expression produced to elicit clarification of the speaker's preceding utterances. It is produced to ensure the right understanding, usually in <i>wh-</i> or <i>yes-no</i> questions or in statement forms which require the speaker to furnish further information or recode the given information.</p>	<p>J: I think the cane will be their friend YJ: The <b>what?</b> (<i>Clarification request</i>) J: Canning &lt;hand gestures of canning&gt; YJ: <b>What did you mean</b> 'k'? (<i>Clarification request</i>)</p>
<p><i>Comprehension Check</i> Any expression produced to check understanding of an interlocutor to ensure that the interlocutor has understood the speaker's preceding utterance, to prevent a breakdown in communication.</p>	<p>L: ...I mean, they could not have been together and someone who is actually meant to be but killing their lives, and <b>you know what I mean?</b> (<i>Comprehension checks</i>) R: Yea...</p>



The LREs are defined as any part of the L2 peer interaction where the participants “talk about the language they are producing, question their own language use or correct themselves or others” (Swain & Lapkin, 1998, p. 326). The LREs are analysed here in terms of form-based (phonology and morphosyntax) and lexical-based (word usage) features and outcomes of the interactional episodes. The LREs measures comprise the Correctly Resolved LREs, Incorrectly Resolved LREs, Unresolved LREs as well as No LREs (see Table 2).

**Table 2**  
*Measures of LREs*

Definitions	Excerpts from peer interactions
<p><i>Correctly resolved LREs</i> A correctly resolved <i>LRE</i> is a part of the peer interaction where the learners successfully resolve the language issues.</p>	<p>F:... he can have higher possibility to get this ...<b>what is it called?</b> (<i>Lexical-based LRE</i>) J: Faster catch up with the others? (<i>Recast</i>) F: Shen zhe &lt; in Chinese Mandarin, it means promotion &gt; JX: Oh, ah...! <b>Promotion?</b> (<i>LRE: Correctly resolved</i>) F: Yea, higher chance to get promotion.</p>
<p><i>Incorrectly resolved LREs</i> An incorrectly resolved <i>LRE</i> is a part of the peer interaction where the learners attempt to solve the language issues but either only partly correct or incorrectly resolves the initial error.</p>	<p>JX: We need, uh... we need mobile phone, the mobile will release the... &lt;JX paused for few seconds, indicating assistance needed from other interlocutor &gt; F: <b>Signal reduced</b> by the mobile phone can affect the body. So, the first point is it will distracting the class, distract the class, distract ourselves... (<i>Incorrectly resolved- Recast More appropriate recast: radiation released</i>) JX : Yea...</p>
<p><i>Unresolved LREs</i> An unresolved <i>LRE</i> is a part of the peer interaction where learners fail to solve the language issues after attempting to provide recast or the learners did not use any techniques to correct each other’s glaring language errors.</p>	<p>CF: Because hmm, Chinese has some, Chinese has a word say xiao shi liao liao, da wei bi jia &lt;a proverb in Chinese Mandarin, it means <i>being bright at an early age does not necessarily bring success upon growing up</i>&gt; JY: Okay... Mm.. like... maybe... CF: I don’t know how to speak in English la JY: Haha.. <b>Never mind</b>, continue.. (<i>LRE Unresolved</i>)</p>

The Uptake of Recast, which refers to a correct rephrase of an incorrect utterance while maintaining the original meaning intact, was measured in this study by Modified Uptakes, Unmodified Uptakes, Acknowledgements and No Uptake (see Table 3).

**Table 3**  
*Measures of Uptake of Recast*

Definitions	Excerpts from peer interactions
<p><i>Modified Uptake</i> A modified uptake of recast is a way a speaker reacts to the corrective feedback given by the interlocutor(s), in which the speaker modifies his or her utterance following the feedback given by his or her peers.</p>	<p>JY: Yea yea, self-discipline, more... <b>self-discipline</b> is more important, <b>can control oneself</b>. So, how about you? (<i>Modified uptake</i>)</p>
<p><i>Unmodified Uptake</i> An unmodified uptake of recast is a way a speaker reacts to the corrective feedback, in which the speaker simply repeats the corrective feedback provided by the interlocutor without changing its form or expanding the ideas from the feedback.</p>	<p>TY: To record down what lecturer taught in class, can refresh on ... lecturer teaching? &lt;rising intonation&gt; YH: <b>Revise</b>...? TY: Ah! <b>Revise</b>... (<i>Unmodified uptake of recast</i>)</p>
<p><i>Acknowledgment</i> An acknowledgment is a way a speaker reacts to the corrective feedback, in which the speaker just gives an acknowledgement of the corrective feedback.</p>	<p>JX: ...this is distracting to students, they cannot concentrate and focus on their studies F: It will <b>disrupt, disrupt</b> during the classes la JX: <b>Yea</b>... (<i>Acknowledgment</i>)</p>
<p><i>No Uptake</i> No uptake of recast is a situation when a learner either did not react or did not respond to the feedback.</p>	<p>F: Slow process? Stubborn is “<i>gu zhi</i>” &lt;in Chinese Mandarin, it means stubborn&gt; ar? JX: Yea, stubborn is <i>gu zhi</i>... less responsive? F: <b>Oh</b>...? &lt;rising intonation&gt; (<i>No uptake</i>) JX: Less responsive can bring to the second point. If they use a lot of time to like Facebooking, they will like less responsive to like... F: <b>Class</b>... (<i>No uptake</i>)</p>

### Data Management and Analysis

Audio-recordings of the students' interactions during dyadic and triadic sessions were transcribed and typed verbatim. The data were stored as a Microsoft Word file. The data were then coded according to the relevant measures of the L2 peer interaction, namely, NoM, LREs and Uptake of recast. The researcher and an expert in the relevant area of applied linguistics individually coded the data. To check the reliability of the analytical procedure, the inter-coder agreement was then assessed by selecting a random sample of 10 sets of transcribed interactions. The inter-coder agreement ranged between 83% and 87% for the coding of NoM, LREs and Uptake of recast, which aligns with the desirable percentage agreement of 80-90% recommended in the methodological literature (Loewen & Plonsky, 2015).

The score of each sub-feature of the NoM, LREs and Uptake of Recast was entered into a Microsoft excel file for the purpose of statistical analysis which included the descriptive statistics and paired sample *t*-test. The statistical analyses were performed using the SPSS computer software (Version 25). The findings from the descriptive statistics helped to answer research question 1 and the inferential statistics provided answer to research question 2.

### Findings

#### Negotiation of Meaning (NoM)

Table 4 shows the findings from descriptive statistics pertaining to the peer interaction in terms of NoM and its associated interactional strategies. As can be seen in the table, clarification requests tended to be the prevalent feature. On average, the greatest number of clarifications requests occurred in triadic groupings during the discussions of complex tasks. Among the more notable findings is that the comprehension checks had, on average, decreased by more than half when the L2 peers were engaged in dyadic and triadic discussions of cognitively more complex tasks. Also, a statistically significant difference between the dyadic and triadic discussions was found to exist only for this interactional strategy:  $t(11) = 2.345, p = .039$ .

**Table 4**

*Descriptive Statistics of Measures of Negotiation of Meaning*

	Dyadic Grouping				Triadic Grouping			
	Simple Task		Complex Task		Simple Task		Complex Task	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Clarification Requests	7.33	5.82	7.56	7.85	11.17	11.09	13.42	9.5
Confirmation Checks	4.94	6.09	4.83	3.71	4.75	4.22	6.67	6.23

Comprehension Checks	0.56	1.42	0.22	0.55	1.25	2.05	0.58	1.44
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To illustrate the findings from the qualitative data, Table 5 provides some examples of the comprehension checks.

**Table 5**  
*Interactional Transcripts on Comprehension Check (Triadic Interaction)*

Task (complexity condition)	features &	Excerpts from learners' peer interaction & Codes
Comprehension check  Simple & Triadic	YJ	Uh, okay, and then, uh.. <b>"may...maychure... maychure..?"</b> ( <i>Comprehension check</i> ) <mispronunciation of a word, mature, repeating the word with rising intonation to check with her peer if she understands the word she mentioned)
	J	Mature ah? ( <i>Other interlocutor, J corrected the pronunciation and also confirmation check</i> )
	YJA	Oh.. !
Comprehension check  Complex & Triadic	CW	...and these all will improve our living quality. Then, save time is like maybe calculate... <b>you get it?</b> ( <i>Comprehension check</i> )
	F	I don't need to heat the water to bathe [hahaha]
	CY	[hahaha] Yea..

*Notes.* YJ, J, YJA were discussing a simple task "Teenagers should be given more freedom by their parents". CW, F and CY were discussing a complex task "Technological interventions cause more harm than good in human life".

In the simple triadic condition as shown in Table 5, YJ realized that she had mispronounced the word *mature*. She proceeded to check with her interlocutors J and YJA whether they understood her utterance. She did not do that by asking a direct question; instead, she repeated the word with a rising intonation. As for the complex triadic condition, CW uttered the question "you get it?" to ascertain if the interlocutors, F and CY, understood the preceding utterance.

### **Language-related Episodes (LRE)**

Table 6 shows the findings from the descriptive statistical analysis of the LRE and associated interactional features. Table 7 provides examples for qualitative data. Table 6 shows that the feature of LRE was not particularly salient, although, on average, there was slightly and consistently greater number of correctly resolved LRE in the triadic groupings. An interesting result was that, on average, the incorrectly resolved LRE had

quite substantially decreased during the discussions of more cognitively complex tasks in both the dyadic and triadic settings. The inferential statistical analysis indicated that this difference was also statistically significant:  $t(17)=3.010$  ,  $p= .008$ .

**Table 6**  
*Descriptive Statistics of Measures of Language-Related Episodes*

	Dyadic Grouping				Triadic Grouping			
	Simple task		Complex task		Simple task		Complex task	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Correctly Resolved LRE	1.78	2.07	1.83	1.15	2.5	3.48	2.75	2.45
Incorrectly Resolved LRE	1.5	1.2	.78	.878	1.25	1.485	.92	1.51
Unresolved LRE	1.44	1.76	2.06	1.89	2.42	3.53	1.75	1.66

Note. LRE=Language-Related Episodes

One example of LRE in Table 7 shows that JX was looking for language assistance concerning the intended use of the word “radiation”. However, her peer F mistakenly resolved the language-related episode. Instead of providing the word “radiation”, F incorrectly resolved the LRE by changing the word *release* with the word “reduced”.

**Table 7**  
*Interactional Transcripts on Incorrectly Resolved LREs (Dyadic Interaction)*

Task (complexity & condition)	Features	Excerpts from learners’ peer interaction & Codes	
Incorrectly resolved LREs  Simple & Dyadic	JX	We need, uh.. we need mobile phone, the mobile will <i>release</i> the... <a pause which indicated a communication impasse and the need of assistance from other interlocutors to repair the impasse>	
	F	Signal <b>reduced</b> by the mobile phone can affect the body. So the first point is, it will distracting the class, distract the class, distract ourselves... < JX needed help with providing the word “release”; F, however, made a wrong assumption > <i>Incorrectly resolved recast</i>	
Incorrectly resolved LREs  Complex & Dyadic	JX	Yea...	
	KM	Uh, if we think from the college, first point maybe is easily to communicate with the parents, second is safety, you can always call someone .. eh ...no, cannot, this one is... <sigh> <a pause which indicated a communication impasse and the need of assistance from other interlocutors to repair the impasse>	

- JM In class.. oh yea, in class, so...
- KM In class, or maybe .... Ah, we will easily to scroll other poems, social media apps, like Facebook, whatsapp, wechat groups, easily to get...causes, easily to get...
- JM **Addicted?**  
*Incorrectly Resolved, it should be "distraction"*
- KM Because it's easily to get, to to...using...causes....uh...easy to use as social media apps, like Facebook, <slip of tongue in Chinese Mandarin: ran hou: after that...> the effects.. effect we can say like
- JM **Causes will be losing concentration**

*Notes.* JX and F were discussing the simple task "Having good grades does not determine success in life". JM and KM were discussing the complex task "Using mobile phones in class brings more advantages than disadvantages".

One of the peer interaction episodes in Table 7 took place in the complex and dyadic condition. KM was looking for the word "distraction" and JM mistakenly provided the word "addiction". However, JM noticed the error and proceeded to express her idea in a short phrase with the correct meaning.

### ***Uptake of Recast***

The findings from the descriptive statistics analysis of the Uptake of recast and its features are reported in Table 8. Table 9 gives some examples from the qualitative data. Table 8 shows that the modified uptake feature tended to be consistently prevalent, except for the triadic discussion where the unmodified uptake of recast prevailed. A notable finding is that, on average, there was a substantial increase in the unmodified uptake of linguistic input in both the dyadic and triadic discussions of more cognitively complex tasks.

At the same time, the acknowledgement of input had decreased by more than half, on average, in the dyadic discussions of more complex tasks; in contrast, it increased in the triadic L2 peer interactions. However, a statistically significant difference between the dyadic and triadic settings was found to exist only for the unmodified uptake of recast measure:  $t(11) = -2.640, p = .023$ .

**Table 8**  
*Descriptive Statistics of Measures of Uptake of Recast*

	Dyadic Grouping				Triadic Grouping			
	Simple task		Complex task		Simple task		Complex task	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Modified Uptake	1.17	1.10	1.5	1.3	1.33	1.16	2.42	2.02

Unmodified Uptake	.67	1.09	1.17	.99	1.58	1.88	3.42	2.54
Acknowledgment	.78	1.31	.33	.59	.33	.89	.58	.79
No Uptake	.61	1.30	.67	1.03	.17	.39	.17	.39

As shown in Table 9, YJ was experiencing a communication impasse in the simple task in triadic condition. She was looking for a word to express her idea regarding the consequence of children being given too much freedom by their parents. It seems she wanted to say that children would be spoiled by their parents. Her interlocutor CC realized the need for linguistic assistance and facilitated the interaction by uttering “they will be spoiled?” YJ uptook the recast without any modification.

**Table 9**  
*Interactional Transcripts on Unmodified Uptake of Recast (Triadic Interaction)*

Task Features (complexity & condition)	Excerpts from learners’ peer interaction & Codes
Unmodified Uptake of Recast (Simple & Triadic)	<p>YJ: .. just give much freedom for their child, uh then naughty then maybe in their riding .. I think it’s actually, it’s actually, how to say, it’s actually... &lt;the pause indicate a communication impasse and the need of assistance from the peers&gt;</p> <p>CC: They will be spoiled? (<i>Lexical-based LRE Correctly Resolved Recast</i>)</p> <p>YJ: Yea yea , the child will be spoiled!</p>
Unmodified Uptake of Recast (Complex & Triadic)	<p>CF It’s also save the cost right? Because we don’t need to buy buy extra hard disk for file storing</p> <p>JY Yea</p> <p>CF They have the, a special they have the like 3TB or 2TB.. uh.. &lt;a pause which indicated a communication impasse and the need of assistance from other interlocutors to repair the impasse&gt;</p> <p>JX The storatation</p> <p>CF Storatation (<i>Unmodified uptake</i>)</p> <p>JY Yea</p>

*Notes:* YJ and CC were discussing the simple task “Teenagers should be given more freedom by their parents”. CF, JY and JX were discussing the complex task “Technological interventions cause more harm than good in human life”.

In another example of a complex and triadic condition, CF needed assistance from the interlocutors to proceed with communication. His peer JX noticed the need for linguistic assistance and provided the (wrong) recast — “storation”. CF uptook the wrong recast without any modification.

### **Discussion**

The first research question focused on the types of interactional features prevalent in L2 peer discussion of simple and complex tasks in the dyadic and triadic settings. As the findings revealed, the clarification requests (NoM) were the most prominent feature for both types of tasks and group settings. On average, the greatest number of clarification requests occurred in the triadic discussions of the more cognitively complex tasks. With regard to the LRE, no feature was particularly prominent though the number of correctly resolved episodes tended to be, on average, slightly greater particularly in the triadic discussions of more complex tasks. Among the uptake of recast, the modified uptake feature was consistently the most salient feature, especially in the triadic groups. Overall, these findings align with the previous empirical investigations where more interaction was noted to occur during the triadic discussions of complex tasks (Gilabert et al., 2009; Nuevo, 2006; Robinson, 2001b).

The second research question concerned whether there existed a statistically significant effect of task complexity on L2 peer interactions in terms of NoM, LRE and Uptake of recast. The findings obtained from the paired sample t-test indicated that a statistically significant difference between the dyadic and triadic settings had existed only for the comprehension checks feature (NoM), the incorrectly resolved episodes (LRE) and the unmodified uptake of recast. The finding indicated that in LRE a statistically significant difference existed only in the instance of the incorrectly resolved LREs deviates from the results reported in some of the earlier studies (Gilabert et al., 2009; Kim, 2012; Nuevo, 2006; Révész, 2007). However, the finding partially aligns with findings reported by Michel et al. (2007), Michel (2011) and Solon et al. (2017) who found no statistically significant difference pertaining to the LREs.

The findings from the inferential statistics were rather mixed and they did not offer an overwhelming support to the Cognition Hypothesis. The findings from the descriptive statistics did indicate that cognitively more complex tasks involved more instances of peer interaction, as proposed by Robinson (2011). Moreover, there was a tendency for more LRE and uptake of recasts in more cognitively complex tasks. However, it was found that the triadic L2 peer discussions prior to an individual L2 writing session enabled notably more intense interactions among the L2 learners in terms of the number of clarification requests (NoM), comprehension checks (NoM), correctly resolved LRE and unmodified uptakes of recasts.



## **Conclusion**

The aim of this study was to narrow down the gap in the research literature and provide an additional empirical validation of the Cognition Hypothesis (Robinson, 2001a, 2001b, 2003b, 2005, 2007). To achieve these aims this study examined the effects of task complexity and peer grouping on peer interaction in the context of English language teaching and learning at a tertiary level. As the findings revealed, the clarification requests (NoM) were the most prominent interaction feature in the dyadic and triadic settings. It was also found that a statistically significant difference in the two types of settings existed only for the comprehension checks feature (NoM), the incorrectly resolved episodes (LRE) and the unmodified uptake of recast. Notably, the tasks that were cognitively more demanding tended to initiate a greater interaction among the peers, especially in the triadic settings. Overall, the findings from the inferential and descriptive statistics have provided empirical support to the validity of the Cognition Hypothesis. There are some pedagogical implications from these findings. A notable implication is that it would be practical to arrange L2 learners in triads, rather than in dyads, for their peer discussion sessions prior to individual work on the L2 task. The present study has some limitations. For example, the participants were all proficient users of English. Therefore, future studies might want to involve L2 learners with markedly different proficiency levels to give additional valuable insights into the dynamics and mechanics of peer interaction in the L2 classroom. Another limitation, which is typical of the L2 classroom-based research, is a relatively small number of the participants. Replication studies might be needed to allow for wider generalizations. An interesting finding that transpired during the data analysis was that the study participants tended to use their first language (L1) when interacting with their peers in the classroom and discussing the given tasks. Further studies, which take this phenomenon into account, will need to be undertaken (see Martin-Beltran et al., 2017). It could be pedagogically valuable to explore the use of translanguaging as a mediation tool during task discussions and peer interactions. Such studies would provide valuable insights into communicative patterns among L2 learners and expand our understanding of mediation tools that can be employed by language educators to facilitate the L2 learning process.

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