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Effect of proficiency on Vietnamese EFL learners' engagement in peer interaction

Abstract

To expand previous interaction research that investigated only the impact of proficiency on occurrence of language related episodes or pair dynamics, this study explored the effect of proficiency on a range of cognitive, social and emotional features of interaction through the lens of engagement. Fifteen core EFL learners interacted with peers of higher and lower proficiency to complete picture sequencing tasks. The core learners' degree of engagement when interacting with the lower and the higher proficiency partners was compared. Results revealed that the core learners showed greater cognitive and social engagement and reported higher emotional engagement when interacting with higher proficiency partners. The results are discussed in terms of the role of proficiency pairing in fostering learner engagement in interaction.

Key words: peer interaction; learner engagement; proficiency; LREs; pair dynamics

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Introduction

Peer interaction has recently received increased attention in second language (L2) research due to its prevalence in language classrooms and its facilitative role in L2 learning. Findings from previous research have suggested that peer interaction is an optimal L2 learning environment when learners engage in interactive feedback (Adams, 2007; Sato & Lyster, 2012), practice their language use (Mackey, 2012; Philp, Adams, & Iwashita, 2014), and co-construct L2 knowledge during interaction (Swain & Lapkin, 2002). However, numerous variables that impact the effectiveness of peer interaction at promoting L2 learning have been identified, of which proficiency has attracted much attention from both L2 instructors and researchers (see Philp et al., 2014; Sato & Ballinger, 2016 for recent reviews). Proficiency has been shown to effect learners' discussion of language form (i.e., language-related episodes or LREs) and their pair dynamics. To date, peer interaction research about proficiency has limited its investigation to these two aspects. Thus, to expand this line of research, the current study further investigated the effects of proficiency on cognitive, social and emotional aspects of peer interaction through the lens of learner engagement.

Effects of proficiency on peer interaction

Previous peer interaction research has shown the effect of interlocutor proficiency on the occurrence of LREs during interaction. When interacting with same-level peers, low-proficiency learners tend to produce more instances of collaborative dialogue (Young & Tedick, 2016) and focus on lexical forms more frequently than grammatical forms (Leeser, 2004; Williams, 2001). Studies that have paired learners from diverse proficiency levels have shown that low-proficiency learners generate more LREs when working with higher-

proficiency partners rather than with same-level peers (Author1, XXXX; Leeser, 2004; Storch & Aldosari, 2013). In addition, low-proficiency learners can be encouraged to engage in more LREs by giving them the role of information provider as opposed to information receiver (Authors2, XXXX). In sum, interlocutor proficiency has been shown to affect the degree to which learners discuss language form and which forms they talk about. However, this body of research has focused predominantly on how interlocutor proficiency affects learners' cognitive orientation, specifically the extent to which they engage in LREs. Although LREs capture some cognitive processes during interaction, they do not measure other cognitive processes that may be relevant during task-based peer interaction, such as learners' discussion of task content.

Besides affecting learners' discussion of language forms, interlocutor proficiency has also been shown to impact the social relationship between learners during dyadic interaction. In mixed proficiency dyads, research has found that higher-proficiency partners may ignore the contributions of their lower proficiency peers (Kowal & Swain, 1994, 1997). Following Storch's framework for pair dynamics (Storch, 2002), researchers have qualitatively coded learners' patterns of interaction during mixed proficiency dyads in terms of mutuality and equality. These studies have shown that learners in mixed proficiency dyads are more likely to engage in non-collaborative and unequal interactions (Authors1, XXXX; Sato, 2017; Storch & Aldosari, 2013; Watanabe & Swain, 2007). However, these studies focused on how pair dynamics impacted the occurrence of LREs, as opposed to more social aspects of peer interaction, such as seeking and providing assistance for task content and execution, encouraging the maintenance of interaction, and responding to a partner's ideas. Consequently, a more complete understanding of how proficiency differences impact learners' social relationships is needed.

In addition to cognitive and social effects linked to proficiency differences, previous research has also suggested that specific interlocutors may provoke certain negative or positive emotions, which may then impact the benefits of peer interaction for L2 learning (Sato & Lyster, 2007; Sheen, 2004; Swain, 2013; Yoshida, 2008). For example, in mixed proficiency dyads, higher-proficiency learners may get frustrated with their less-proficient peers, who may then adopt a more passive role in response to that frustration (Kowal & Swain, 1994). To date, very little research has examined whether interlocutor proficiency affects learners' emotions. Given that peer interaction is a cognitive, emotional and social phenomenon (Atkinson, 2010; Block, 2003; Swain, 2013), empirical research should also consider the potential impact of proficiency on learners' emotions.

To summarize, proficiency has been shown to impact peer interaction at cognitive, emotional, and social levels. However, this research has drawn largely on the commonly used constructs of LREs and collaborative pair dynamics to identify how interlocutor proficiency plays a role in peer interaction. To gain a broader perspective into the impact of interlocutor proficiency on learners' peer interaction, L2 research needs to explore additional constructs that can provide insight into more varied aspects of interaction. In light of this goal, recent peer interaction research has adopted the multidimensional construct of engagement to explore additional dimensions of peer interaction (Baralt, Gurzynski-Weiss, & Kim, 2016; Lambert, Philp, & Nakamura, 2017; Phung, 2017). The next section discusses models of engagement in L2 interaction.

Engagement in L2 interaction

Contemporary approaches to engagement have been heavily influenced by Svalberg's model of engagement with language (2009, 2012). She defined engagement with language as cognitive, affective and social states and/or processes in which language is treated both as an

object and/or a means to communicate meaning. Cognitive engagement was defined as an individual's alertness, focused attention and active construction of knowledge, whereas affective engagement was associated with willingness to interact, purposefulness, and autonomy. Social engagement was defined in terms of supportiveness and interactiveness.

Although Svalberg proposed a comprehensive and pioneering model of learner engagement, only a few empirical studies have adopted her framework when analyzing peer interaction (e.g., Ahn, 2016; Baralt et al., 2016). One possible reason is that researchers have faced challenges when operationalizing the construct of engagement and differentiating among its cognitive, affective, and social dimensions. For instance, in their study about the effects of task complexity and task modality on learner engagement, Baralt et al. (2016) reduced and simplified the criteria used to identify types of engagement. Following from previous peer interaction research, they operationalized cognitive engagement in terms of noticing of interaction features and language (e.g., LREs). Social engagement was defined in terms of collaboration, mutual support and help, as seen previously in Storch's framework, while affective engagement was considered in terms of willingness to engage (e.g., eagerness or withdrawal). These dimensions of engagement were identified through an analysis of learners' interaction, chat logs, and questionnaires. Baralt et al.'s effort in reconceptualizing and simplifying the criteria for identifying engagement has revealed the challenges with applying Svalberg's model in L2 research.

Although not explicitly referring to Svalberg's model of engagement with language, Philp and Duchesne's (2016) model of task engagement also defines engagement as a multidimensional construct. They define engagement as "a state of heightened attention and involvement" (p.3) that manifests in four dimensions: cognitive, emotional, behavioral and social. Whereas cognitive engagement includes processes such as sustained attention, mental

effort, and self-regulation strategies, emotional engagement refers to the expression of a variety of emotions such as enthusiasm, interest, enjoyment, disaffection, anxiety, frustration and boredom. Behavioral engagement is defined as keeping on task as evidenced by the quantity of on-task talk, while social engagement reflects the degree of reciprocity and mutuality between learners during task-based interaction.

Researchers have adopted Philp and Duchesne's model to explore how different task design and implementation factors impact peer interaction. For example, Lambert, Philp and Nakamura (2017) compared learners' engagement when carrying out tasks with either learner-generated or teacher-generated content. They operationalized behavioral engagement as quantity of speech, while cognitive engagement included negotiation of meaning along with the production of elaborative clauses (e.g., ideas that were elaborated through justifications, explanations, and questioning). Social engagement was defined in terms of back channels. They found that there were significant differences between two conditions on all engagement measures, including words produced, time on task, elaborative clauses, negotiation of meaning, and backchannels. Similar measures were used to determine the impact of task repetition and content familiarity (Qiu & Lo, 2017) and task preference (Phung, 2017) on peer interaction. These studies demonstrated that learners showed greater behavioral and cognitive engagement when they were familiar with task content and when they performed the tasks that they preferred. However, repeating tasks had a negative effect on their engagement.

Although Philp and Duchesne's model of task engagement has provided researchers with concrete measures for all four dimensions of engagement, some researchers have argued that behavioral engagement reflects or overlaps with cognitive, emotional and social engagement, as opposed to being a separate dimension (Oga-Baldwin & Nakata, 2017; Reeve, 2012). In other words, when learners are cognitively, emotionally and socially engaged, they

demonstrate this through their behavior. A learner who is cognitively engaged may engage in behaviors such as talking about language form (i.e., LREs) or discussing task content, which Lambert et al. (2017) referred to as elaborative talk. Social engagement could be seen through learners' behavior in terms of whether they provide explicit encouragement and help to their partner, and how often they respond to their partner's contributions. Emotional engagement could also be reflected in learner's behavior, such as through expressions of interest or excitement along with signs of enjoyment such as laughs. In short, it is possible to define cognitive, social, and emotional engagement through behavioral indicators.

To summarize, previous research that investigated the impact of interlocutor proficiency on peer interaction has focused predominantly on LREs and collaborative pair dynamics. To further explore the potential impact of interlocutor proficiency on learners' task-based interaction, the current study adopts engagement as a methodological framework. Because dimensions of engagement are interdependent, research needs to adopt multiple measures of all aspects to reveal a more comprehensive picture of engagement (Pekrun & Linnenbrink-Garcia, 2012; Philp & Duchesne, 2016). To address the overlap between behavioral engagement and other engagement types, the current study defined engagement as consisting of cognitive, emotional and social dimensions that can be identified through learner behavior. In addition, previous research has suggested that dimensions of engagement were not easily and neatly teased apart (Baralt et al., 2016; Lambert et al., 2017). In an attempt to separate different types of engagement, the study proposed new measures to capture these dimensions of engagement. Because proficiency has been shown in previous studies (Authors1, XXXX, Authors2, XXXX; Leeser, 2004; Watanabe & Swain, 2007; Williams, 2001) to affect learners' discussion of language forms (i.e., an indicator of cognitive engagement) and their pair dynamics (i.e., an indicator of social engagement), it may also

impact other dimensions of engagement. The study therefore addresses the following research question: What aspects of learner engagement during peer interaction are affected by interlocutor proficiency?

Method

Participants

Participants were 45 Vietnamese learners of English as a foreign language (26 females and 19 males) who were enrolled in undergraduate degree programs at a university in Vietnam. They were classmates in two classes of the same English course, which was required by their undergraduate program. They ranged in age from 18 to 24 years old, with a mean of 20.3 years ($SD =1.1$). There was variation in their English proficiency as measured by a paper-based TOEFL test, with a mean score of 452 ($SD = 53$) across the entire sample. To create groups of learners ($n = 15$) with different proficiency levels, a 50-point TOEFL score differential was used (Authors2, XXXX; Kowal & Swain, 1994, 1997). The low proficiency learners had a mean score of 409 ($SD = 44$), while the higher proficiency learners had a mean TOEFL score of 497 ($SD = 36$). The core learners had a mean TOEFL score of 451 ($SD = 37$), which placed them in between the lower and higher proficiency learners. Although speaking is not assessed in TOEFL paper-based test, it is a global proficiency measure that does reflect L2 learners' speaking ability (see Butler, Eignor, Jones, McNamara & Suomi, 2000).

Design

A repeated-measures, within-groups design was used to examine the effect of proficiency on the core learners' engagement during peer interaction. The independent variable was interlocutor proficiency, which had two levels: lower-proficiency and higher-proficiency. Each core learner ($n = 15$) interacted with a lower and higher proficiency partner.

To reduce the possibility that learners may form negative perceptions towards their partners based on proficiency criteria, the learners were not told about their TOEFL scores and the reason for pairing dyads.

The dependent variable was the core learners' engagement, which consisted of three main dimensions: cognitive, social and emotional engagement. Cognitive engagement was operationalized as the core learners' discussion of language features and task content (Baralt et al., 2016; Helme & Clarke, 2001). Drawing on Storch's (2001) interactional framework, social engagement was operationalized as the core learners' social relationship with their peer in interaction. Because learners' pattern of interaction may change during an interaction (Authors2, XXXX; Storch, 2001), using holistic coding of pair dynamics cannot capture these changes. To address the problem, behavioural measures of social engagement were used, which included instances of learners' mutual help about non-linguistic issues, provision of encouragement, and responsiveness where learners reflect on and respond to each other's contribution. Finally, emotional engagement was operationalized as the core learners' positive feeling aroused during interaction: enjoyment, interest, excitement, enthusiasm, and pleasure (Imai, 2010). Although emotions could be negative as discussed earlier, the present study operationalized emotional engagement in terms of only positive values because pilot study data did not contain explicit negative emotions. The pilot learners only showed positive emotions as reflected through explicit comments about their feelings and enjoyment such as laughs due to the fun of the task interaction. However, because even positive emotions occurred infrequently in the pilot data, a post-task questionnaire adapted from previous research (Authors1, XXXX; Baralt et al., 2016; Lambert et al., 2017; Qiu & Lo, 2017) was administered as an additional measure of emotional engagement.

Materials

The materials consisted of two picture sequencing tasks and an emotional engagement questionnaire. The picture sequencing tasks were adapted from materials in the learners' regular English class that they had not yet completed, with each task consisting of ten pictures (see Appendix A). One task depicted a series of events in a person's life, ranging from birth to adulthood, while the other task showed a series of events from a family vacation. The emotional engagement questionnaire was developed by the first researcher using the qualitative findings of previous research for item development (Baralt et al., 2016; Helme & Clarke, 2001). It had five, 10-point Likert-scale items that asked learners to rate their degree of enjoyment, interest, excitement, enthusiasm, and pleasure while doing the task (see Appendix B). The questionnaire was informally pilot tested and minor changes to the wording of the items were made. Instrument reliability (Cronbach's alpha) was .94.

Procedure

The learners carried out the tasks during one 60-minute, regularly scheduled EFL class. After completing a short background information form (10 minutes), the learners were assigned to a partner by the teacher and received the task instructions (10 minutes). After asking any clarification questions about the task instructions, the learners carried out a task by describing and sequencing the ten pictures into a narrative (15 minutes), with each learner receiving five pictures, and then completed the emotional engagement questionnaire (5 minutes). The learners then were assigned to a new partner to carry out the second task (15 minutes) and complete another emotional engagement questionnaire (5 minutes). To control for practice effects, the order of the tasks was counterbalanced, as was the proficiency of the core learners' partners. To reduce potential variation caused by differences in time on task, learners received only 15 minutes to complete each task. Individual digital audio-recorders were used to record their interactions while carrying out the tasks.

Analysis

The audio-recordings were transcribed by a research assistant and verified by the first researcher. The transcripts were coded in terms of the core learners' cognitive, emotional, and social engagement to determine how they were affected by their interlocutor's proficiency level (higher or lower). Following previous engagement research (Baralt et al., 2016; Toth, Wagner & Moranski, 2013) cognitive engagement was operationalized as LREs using Swain and Lapkin's (1998) definition of LREs as episodes where a core learner either initiated or responded to language issues. Excerpt 1 shows the cognitive engagement of a core learner who asked her higher proficiency partner (HP learner) to provide the lexical item *traffic jam*.

Excerpt 1. Cognitive engagement: LRE

 1   Core learner: They look worry uh…it is bị *kẹt xe là gì?* [*What is traffic jam?*]

 2   HP learner: The traffic jam

 3   Core learner: This is traffic jam uh and I think they are late

To capture learner engagement with content, cognitive engagement was also operationalized as idea units, which were defined following McCarthy's (1991) *theme-rheme* framework as segments of information or comments about the theme under discussion (see Shin, Lidster, Sabraw, & Yeager, 2016 for discussion and examples of idea units). Idea units were a broad measure of learners' discussion of task content, which also included elaborative clauses (i.e. elaboration of semantic contents), which were a measure of cognitive engagement used in previous research (Lambert et al., 2017). Excerpt 2, taken from Pair 03 between the core learner and the lower proficiency peer (LP learner) illustrates the core learner's cognitive engagement with the task content through idea units. In this excerpt, the core learner produced two idea units.

Excerpt 2. Cognitive engagement: Idea units

1   Core leaner: …the family waiting on the station station

2   LP learner: There are station ok uh there are two people in the

                      station

3   Core leaner: I think this picture is the first uh because uh the family

                      the family move from house to the station first do you

                      know do you agree with me uh?

4   LP learner: Ya the station

5   Core leaner: Uh move uh move from house to station uh …

The first idea unit (line 1) is new information that the core learner provided to describe the

family's vacation journey *the family waiting on the station.* The second idea unit is her

justification for the sequence *because uh the family the family move from house to the station*

first (line 3). Her information in line 5 (*uh move uh move from house to station uh*) was not

counted as an idea unit because it was the repetition of her previous comment in line 3. Since

the analysis focused narrowly on how the core learners were affected by their interlocutors'

proficiency, the lower-proficiency learner's idea units were not included in the analysis.

Emotional engagement was identified through the frequency of instances of talk where

a core learner explicitly expressed their enjoyment such as laughs or commented about their

positive emotions (Glenn and Holt, 2013). Excerpts 3 and 4 taken from Pair 02 between a

core learner and a higher proficiency partner illustrate the core learner's emotional

engagement as reflected through enjoyment and laughs during the task.

Excerpt 3. Emotional engagement: an enjoyment and laugh episode initiated by the core-

learner

1   HP learner: Oh and the rat here he's as almost as big as his as her head

2	Core-learner	What the…the mountain rat?
3	HP learner:	Mountain mountain rat
4	Core-learner	Ha ha [*laughing*]
5	HP learner:	[*laughing*]

In Excerpt 3, the core learner made fun of her partner's comparison of a rat to a human head by referring to it as *the mountain rat* (line 2) and laughing (line 4). In Excerpt 4, both learners laughed when the higher proficiency learner suggested that people waiting in the bus station had been robbed, after which the core learner commented that her partner was *imaginative and funny* (line 2).

Excerpt 4. Emotional engagement: an enjoyment and laugh episode initiated by the core learner's partner

| 1 | HP learner: | They are robbed maybe there are some robbers that rob their baggage [*laughing*] |
| 2 | Core-learner: | Yeah that why they're that's why they are so sad…you are so imaginative and funny yeah [*laughing*] |

Because the focus was on the core learner's behaviour, enjoyment and laugh episodes in which only a non-core learner expressed positive emotions or laughed because of enjoyment were not included in the analysis. For the emotional engagement questionnaire, a total score was obtained by summing the five items and results were used as an additional measure of learners' positive emotions.

Evidence of social engagement was operationalized as episodes in which the core learners requested or provided help, gave encouragement, or showed responsiveness to their partner's ideas or opinions (Storch, 2001). Unlike LREs, these episodes involved non-linguistic aspects of task interaction, such as content, task management, and time

management. Excerpt 5 from Pair 12 shows social engagement when the core learner requested assistance about how to carry out the task from his higher proficiency partner.

Excerpt 5. Social engagement: Request for task management assistance

1	Core learner:	So what we should do now?
2	HP learner:	Let me see…maybe uh we divide into five and five right...and uh… I will describe five pictures and you describe these pictures ok?
3	Core learner:	Ok

Excerpt 6 taken from Pair 05 also illustrates the core learners' social engagement as reflected through the core learner's provision of encouragement and support to his lower proficiency partner.

Excerpt 6. Social engagement: An instance of encouragement

1	LP learner:	Uh… I feel uh nervous at now
2	Core learner:	Yeah take it easy and you choose one…just one picture
3	LP learner:	Uh--
4	Core learner	--yeah I choose one uh… can you describe something about your picture?
5	LP learner:	I think uh two boys are play football together and uh ...

In Excerpt 6, when the lower proficiency learner expressed her nervousness (line 1), the core learner comforted her *take it easy* (line 2) and suggested that she chose a picture and described it (line 4).

Social engagement also included episodes of responsiveness, which reflects the concept of mutuality in Storch's (2001) framework that refers to learners' engagement with each other's ideas. Responsiveness episodes occurred when a core learner engaged with a partner's previous opinions or ideas, which was demonstrated through repetition of an idea,

comments about an idea, and completing or expanding on an idea. Unlike idea units, which quantify the content of learner contributions, responsiveness reflects a learner's degree of mutuality and reciprocity. Thus, the focus of idea units is on the amount of content that was produced, whereas the focus of responsiveness is on mutuality between learners. Excerpt 7 from Pair 15 illustrates the core learner's social engagement through responsiveness to her partner's ideas, which occurred in line 2 when the core learner developed her partner's idea that the people in the picture were a couple by suggesting they were *maybe husband and wife or boyfriend and girlfriend.*

Excerpt 7. Social engagement: responsiveness

1   HP learner   The second picture I think these are these people are a couple

2   Core learner   They maybe uh …husband and wife or boyfriend and girlfriend …and

                     this boy on uh the bed he's sleeping …maybe he's the couple's son

Following the training by the first researcher, a second rater independently coded a subset of the data (25%) for instances of cognitive, emotional and social engagement. Interrater reliability using Pearson correlations was $r = .88$ for cognitive engagement, $r = .95$ for emotional engagement, and $r = .90$ for social engagement. In light of the repeated-measures design, the core learners' cognitive, social, and emotional engagement for each task were summed and compared to determine if there was variation that could be attributed to their partners' proficiency. Although time on task was strictly controlled, the raw frequency counts were divided by the core learners' total turns to further control for possible differences in time on task (Smith, 2003). The normalized scores for cognitive, social, and emotional engagement were compared using separate paired-samples t-tests.

Results

Quantitative results

The research question asked whether interlocutor proficiency affected core learners' cognitive, social, and emotional engagement during task-based interaction. Table 1 shows the occurrence of cognitive, social, and emotional engagement in terms of raw frequency counts (sum) and normalized proportion scores (sum/turns), along with the emotional engagement questionnaire scores. The core learners showed greater engagement for all cognitive, social, and emotional measures when they interacted with higher proficiency partners than when they talked to lower proficiency partners, in terms of both raw and normalized scores.

Table 1

Occurrence of Engagement by Partner's Proficiency Level

		Lower-proficiency partner				Higher-proficiency partner			
		Sum		By words		Sum		By words	
		M	SD	M	SD	M	SD	M	SD
Cognitive	Idea units	39.20	15.94	.73	.40	52.60	18.33	.95	.35
	LREs	11.07	5.27	.20	.10	16.07	5.48	.31	.14
Emotional	Enjoyment & laughs	8.33	5.63	.13	.09	10.67	11.32	.17	.15
	Questionnaire	31.00	9.58	--	--	37.20	7.11	--	--
Social	Encouragement, help & responsiveness	29.40	13.15	.50	.14	48.60	26.76	.83	.25

Paired-samples t-tests were carried for each variable using an adjusted alpha level of .010 (.05/5). For cognitive engagement, the learners produced significantly more ideas units when they interacted with a higher-proficiency partner, $t(14) = 3.15$, $p = .007$, $d = .30$, but there was no difference in their production of LREs, $t(14) = 2.82$, $p = .014$, $d = .07$. They also had greater social engagement when working with a higher proficiency partner: $t(14) = 5.16$, $p =$

.001, d = 1.42. However, there was no significant difference in the emotional engagement measures based on interlocutor proficiency: $t(14)$ =.94, p = .360, d = .35, although they reported greater emotional engagement when working with a higher-proficiency partner: $t(14)$ = 3.14, p = .007, d = .84.

Qualitative findings

To illustrate the quantitative findings that the core learners showed greater cognitive engagement as measured by idea units when interacting with higher proficiency partners than with lower proficiency partners, exchanges from one core learner are shown in Excerpts 8 and 9. In Excerpt 8, the core learner produced four idea units while interacting with a higher proficiency partner: *the man say goodbyes* (line 1)*, the couple has a baby* (line 1) *couple bring your children go to city* (lines 5)*, prepare for college* (line 11).

Excerpt 8. Core learner with higher proficiency partner

1	Core learner:	Uh…I think uh…the man…man say goodbyes uh…the couple…and the couple…the couple have has a baby
2	HP learner:	Uh…I think she's his mom
3	Core learner:	Oh yes
4	HP learner:	And they are a family …and grandmother?
5	Core learner:	Yes grandmother I think couple uh bring …uh bring yours–bring your children uh bring your children go to…
6	HP learner:	City?
7	Core learner:	Ah yes they
8	HP learner:	City yeah and I will say about my pictures it is a really happy family

9	Core learner:	Yes
10	HP learner:	Dad is holding the baby and mom is uh feeding him I think so… and this too
11	Core learner:	Prepare for college
12	HP learner:	Ah we we we connect with this… maybe uh… maybe we will let it in here and we we we we continue our talking
13	Core learner:	But I don't realize connect between some pictures
14	HP learner:	Maybe uh uh I think it's a process of a boy …you can see a boy little boy and here he is bigger
15	Core learner:	Oh yeah

In contrast, Excerpt 9 shows the same core learner interacting with a lower proficiency partner. Although this excerpt is the same length (15 turns) as the previous example, the core learner produced only one idea unit *coconut trees* (lines 5 –10).

Excerpt 9. Core learner with lower proficiency partner

1	LP learner:	Uh …there are one plane… uh be uh there's one uh family
2	Core learner:	Yeah one family
3	LP learner:	Birds
4	Core learner:	Bird
5	LP learner:	Birds and uh trees
6	Core learner:	What do you think this tree?
7	LP learner:	Uh
8	Core learner:	Coconut
9	LP learner:	Coconut

10	Core learner:	Yeah coconut
11	LP learner:	And uh boat boat
12	Core learner:	Boat?
13	LP learner:	Boat
14	Core learner:	Boat
15	LP learner:	And beach

Besides engaging in more idea units, the core learner also produced more linguistically complex clausal structures when interacting with the higher proficiency partner, as opposed to the single word idea units produced when talking to the lower proficiency partner.

In terms of cognitive engagement measured through LREs, the core learners tended to initiate and respond to more language problems when interacting with higher proficiency partners than with lower proficiency partners, although the difference failed to reach statistical significance using an adjusted alpha level. Excerpts 10 and 11 taken the same core learner illustrate this trend in the data. In Excerpt 10, the core learner engaged in five LREs in a 15-turn sequence while talking to a higher proficiency partner.

Excerpt 10. Core learner interacting with a higher proficiency partner

1	Core learner	Uh this family uh they are go to–they go to the travel
2	HP learner	Yes travel travel uh yes I think so and next picture
3	Core learner	Uh they are uh they are eat uh –they are eating for dinner uh
4	HP learner	I think they have to prepare some cloth food before they travel
5	Core learner	Ok ok… uh next picture are you get on *đi lên máy bay là gì?*[what is 'get on board'] ah go to plane

6	HP learner	uh go to plane….uh travel by plane [*laughing*] but uh I don't know and uh uh… no I think they uh are moving on the street in order to they need to go uh
7	Core learner	move to hotel uh…or motel [*wrong pronunciation*]?
8	HP learner	Motel motel [*correct pronunciation*] yes yes and …uh they have lunch have lunch after that
9	Core learner	Yes they have lunch in restaurant
10	HP learner	Uh lunch in restaurant before before they move uh it's wrong …yes…uh she waiting for the station then she go to plane in order to they move move to another place after that I don't know that picture… I have no idea [*laughing*]
11	Core learner	*cái gì* [what?] she wait airport uh she wait for airport …wait *mà cái này chờ sân máy bay mà* [here waiting at the airport]
12	HP learner	Huh I uh
13	Core learner	*Chớ đâu phải xe lửa đâu ờ* [it's not the train] uh not train ok?
14	HP learner	I don't know
15	Core learner	Airport uh ….I think now restart to describe the story first the family prepare to uh something uh …to have a travel

As can be seen in Excerpt 10, the core learner was engaged in two LREs that concerned verb tenses (line 1 and line 3), two LREs about lexical issues such as a phrase (line 5) and a missing article (line 11), and one LRE about a phonological problem. With regard to characteristics of LREs, three out of five LREs were the core learners' self-correction of their language errors (lines 1, 3, and 11).

In contrast, during an exchange of similar length with a lower proficiency partner, the

core learner produced only one LRE (shown in Excerpt 11).

Excerpt 11. Core learner interacting with lower proficiency partner

1	LP learner:	I think uh it …my son can go to school … son can go to school
2	Core learner:	Yes son go to school first uh…after that uh
3	LP learner:	Ya my son to school uh …work work he … đưa đi học là gì [what is *sent to school*]?
4	Core learner:	I don't find the word
5	LP learner:	What word you find?
6	Core learner:	*Đưa đón đưa rước* [*pick up*] pick pick catch up
7	LP learner:	Catch up …
8	Core learner:	Take?
9	LP learner:	Uh….[*long pause*] it's ok
10	Core learner:	Father have to…take take take
11	LP learner:	Take children
12	Core learner:	Take take children take children to school …[*long pause*]
13	LP learner:	How picture this…working?
14	Core learner:	His working he earn money this ok?
15	LP learner:	Yes yes and uh

In Excerpt 11, the core learner was involved in one LRE (lines 3–9) where she responded to a

language problem raised by her lower proficiency learner (line 3). Although the core learner

could not provide a solution at first (line 4), she was able to suggest two solutions later (line 6

and line 8).

The qualitative results also shed light on the finding that the core learners had greater social engagement when interacting with a higher proficiency partner. The core learner shown in Excerpts 12 and 13 illustrates this difference. In Excerpt 12, he was involved in four instances of responsiveness with her higher proficiency partner: agree with his partner (lines 1–2), comment on his partner's previous opinions (lines 3–4), invite his partner to talk and maintain conversation (lines 6 –9), and clarify his partner's idea (lines 10 –13).

Excerpt 12. Core learner with a higher proficiency partner

1	HP learner:	Ok I think the boy is the main character
2	Core learner:	Alright…
3	HP learner:	Maybe from she was a baby to uh until she –he get older
4	Core learner:	He grow up alright
5	HP learner:	Ya
6	Core learner:	So what do you think about the first picture?
7	HP learner:	First one uh…[*long pause*]
8	Core learner:	I think first picture is this picture because he's very little and his mother have to fed him
9	HP learner:	Yeah
10	Core learner:	what's it? [*laughing*]
11	HP learner:	Uh when he uh when he got older a little bit uh he he he fall fall over the bed something like that fall over the bed to the ground
12	Core learner:	You mean he you mean he made an accident he made an accident
13	HP learner:	Ya

In contrast, when interacting with a lower proficiency, the same core learner showed less

social engagement as reflected by only two instances of responsiveness in Excerpt 13 (lines 8

–9, and lines 10 –11). In addition, the core learner ignored his partner's questions (lines 4)

and tended to dominate the conversation (lines 3 and 11).

Excerpt 13. Core learner with a lower proficiency partner

1	Core learner:	What do you think about the first picture uh the story?
2	LP learner:	In uh …the first picture uh…[*long pause*]
3	Core learner:	I think the story is the son go out and he forgot to close the door …it's the reason that the mouse come to his mother room …and come to the bed that make the mother very surprise
4	LP learner:	Her?
5	Core learner:	No she's angry and scared
6	LP learner:	Ah scare
7	Core learner:	And in the second one she is very angry and then she hit him and in uh
8	LP learner:	May be she realize mistake
9	Core learner:	yes yes realize …and after that she think long time and she think many things and understand that she should not do too like that …
10	LP learner:	She something wrong with her son
11	Core learner:	Yes and then I think she have to apologize to her son and uh for –forgive his mistake... and in this picture uh in this picture there are three member in his family mother father and a daughter –

		son –a children and they gather together to enjoy the meal
		together and they plan for this trip in the next situation uh they
		plan for go to a beach…I talk a lot what do you think?
12	LP learner:	uh uh I think …we uh but this picture I don't understand…

Discussion

The goal of this study was to investigate whether interlocutor proficiency affected core learners' cognitive, emotional and social engagement. The results indicated that the core learners showed significantly higher cognitive and social engagement when working with higher proficiency partners, but there was no difference in their emotional engagement. The core learners produced significantly more idea units when paired with higher proficiency learners than with lower proficiency learners. However, previous research reported that proficiency did not affect the extent to which learners elaborated their talk and negotiated for meaning (Lambert et al., 2017). It is possible that when talking to higher proficiency partners, the core learners might have been prompted by their higher proficiency partners to generate more ideas as shown in lines 4, 6 and 14 (Excerpt 8). In addition, the core learners may have been more able to retrieve relevant lexical and syntactic resources to generate content by eliciting help and contributions from their higher proficiency partners (Philp & Duchesne, 2016), therefore produced more idea units. In contrast, the core learners produced fewer idea units due to the limited help or little contribution from the lower proficiency partner (e.g., one-word utterance) as shown in Excerpt 9.

In terms of cognitive engagement with language issues, the results showed that when talking to higher proficiency partners, the core learners engaged in more LREs; however, the difference did not reach statistical significance after applying the conservative Bonferroni adjustment. The trend in the descriptive data is in line with the findings of previous studies

which reported more LREs when lower proficiency learners are paired with more advanced
interlocutors (Authors1, XXXX; Leeser, 2004; Storch & Aldosari, 2013; Williams, 2001). In
addition, the core learners appeared to self-correct their language problems more often when
interacting with higher proficiency learners. Previous research suggested that specific types of
LREs (e.g., self-correction and collaborative resolution of language problems) may have
differential effects on L2 learning (see Fernández Dobao, 2014; Swain & Lapkin, 1998;
Williams, 2001). However, it is not known in this data what characteristics of LREs, i.e., self-
correction (Shehadeh, 2001) and joint-effort in resolving language problems, are more
beneficial to L2 learning because no measures were used to test this effect.

Another main finding was that the core learner demonstrated more social engagement
when working with higher proficiency partners. Previous studies suggested that in mixed
proficiency dyads, the higher proficiency learners might encourage their lower proficiency
partners to talk (Watanabe & Swain, 2007; Kowal & Swain, 1994, 1997; also see Storch,
2001), which was illustrated in Excerpts 1, 5, 8, 10, and 12. Thus, the core learner tended to
take a more active stance and was more socially engaged when the higher proficiency partner
encouraged him or her to talk in order to maintain interaction (Baralt et al., 2016; Reeve,
2012; Svalberg, 2009). In addition, despite being the lower proficiency learner when
interacting with a higher proficiency partner, the core learners appeared to be sufficiently
proficient to contribute to the conversation (Excerpt 12). This was likely to prevent the higher
proficiency partner from dominating the conversation (Authors1, XXXX; Kowal & Swain,
1994, 1997). In contrast, when the core learners were the higher proficiency partner, their
lower proficiency partners may have not had enough linguistic resources to contribute to the
conversation despite being prompted by the core learner, leading the core learners to take on a
more dominate role in order to complete the task (Excerpt 13).

An interesting question is why the core learners failed to provide help when interacting with a lower proficiency learner. It is possible that the core learners were unable to take on the role of providing help and assistance due to their own language difficulties, such as being unable to respond to requests as shown in Excerpt 11. In addition, when encountering language difficulties the core learner could not receive much help from the lower proficiency partner as opposed to the higher proficiency partner as shown in Excerpt 10. As can be shown in Excerpt 9, both the core and lower proficiency learners produced many one-word utterances, showing their limited proficiency. Thus, the core learner might not have had sufficient language skills or abilities to help or encourage the lower proficiency partner to take an active role in the interaction.

Finally, although the core learners did not display more positive emotion when interacting with higher proficiency partners, they did report significantly higher emotional engagement on the post-task questionnaires. The findings add to those of previous studies which found variation in emotional engagement based on task implementation factors such as task repetition, task modality and task factors such as task content and task topic (Baralt et al., 2016; Lambert et al., 2017, Phung, 2017, Qiu & Lo, 2017). One possible explanation for the non-significant results is that the core learners might have hidden their actual emotions when interacting with the lower-proficiency partner to avoid any possible conflicts with their classmates, but expressed different emotions on the questionnaires knowing that their responses were private. Another possibility is that task interaction elicits similar levels of emotional engagement as measured through positive emotions regardless of interlocutor proficiency.

The findings pose some implications for pedagogy. First, because the core learners demonstrated higher production of idea units and greater social engagement when talking to

higher proficiency partners, L2 instructors could pair low proficiency learners with higher proficiency partners to promote greater engagement so that lower proficiency learners could benefit from seeking help and the higher proficiency learners benefit through practice of teaching and providing assistance (Authors, 2011; Storch, 2002; Watanabe & Swain, 2007; Williams, 2001). However, higher proficiency learners may dominate the conversation as shown when the core learners worked with lower proficiency partners. Furthermore, the low proficiency partner may need a minimum level of proficiency to participate in the conversation. Thus, it may be necessary to train learners about how to interact with lower proficiency partners, model collaborative interactions (Authors1, XXXX; Fujii, Ziegler, & Mackey 2016) or assign the lower proficiency partner an active task role (Authors2, XXXX) so that both learners could work collaboratively and benefit from the mixed proficiency interaction (Storch & Aldosari, 2013; Watanabe & Swain, 2007).

Despite providing insight into learners' cognitive, social, and emotional engagement during task interaction, the current study has some limitations that impact its generalizability. Methodologically, due to the feasibility in operationalizing the construct, learner's emotional engagement captured only positive emotions that could be easily tracked in transcripts of audio-recordings through learners' explicit expression of enjoyment and laughs, thus leaving out possible negative emotions. Because learners of the current study consented to audio-record their interactions only, video-recordings and more sophisticated transcription may be needed in future research to detect more accurately capture learners' emotions through facial expressions and posture. In addition, the current study used a questionnaire to measure emotional engagement for data triangulation, but the questionnaire items were Likert scale questions that asked the learners about positive emotions only. Thus, future studies might implement questionnaires that elicit both positive and negative emotions and include open-

ended questions as used in previous studies (Baralt et al., 2016; Lambert et al., 2017; Phung, 2017).

Conclusion

The present study provides further evidence that interlocutor's proficiency plays a role in task-based interaction, specifically by influencing their cognitive and social engagement. The core learners showed greater cognitive and social engagement when paired with higher proficiency partners than when they interacted with lower proficiency partners. In addition, the core learners reported that they had more positive emotions when interacting with higher peers. The findings highlight that the teacher could pair learners with higher proficiency partners to elicit language production (i.e., idea units), positive emotions, and collaborative social relationships. However, learners' proficiency levels should not be so low that non-collaborative interactional patterns result. To conclude, the study provides further insight into peer interaction as a complex and multidimensional phenomenon, with proficiency being an influential variable affecting all of a wide variety of cognitive and social aspects.

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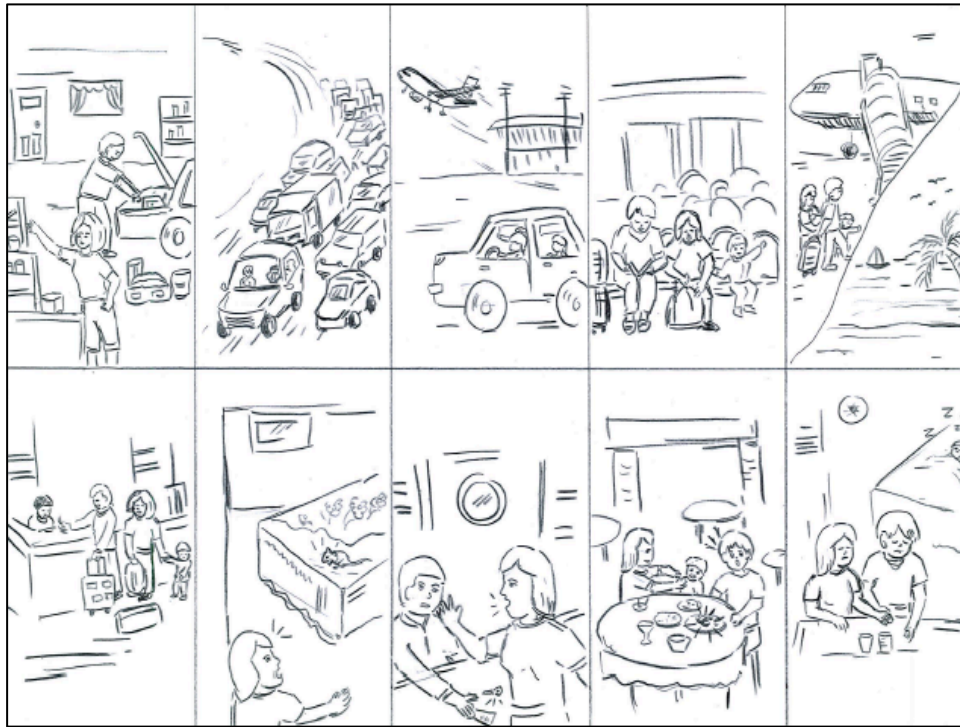
Appendix 1

Story sequencing tasks

Set 1

Set 2

Appendix 2

Emotional engagement questionnaire

Instruction: Indicate whether you agree with the following statements. Circle the number in the scale										
	Strongly disagree									**Strongly agree**
I felt enjoyable when interacting and doing the task.	1	2	3	4	5	6	7	8	9	10
I felt pleased when interacting and doing the task.	1	2	3	4	5	6	7	8	9	10
I felt interested when interacting and doing the task.	1	2	3	4	5	6	7	8	9	10
I felt enthusiastic when interacting and doing the task.	1	2	3	4	5	6	7	8	9	10
I felt excited when interacting and doing the task.	1	2	3	4	5	6	7	8	9	10