Effect of interaction strategy instruction on learner engagement in peer interaction

Author's information

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To cite this article:

Dao, P. (2020). Effect of interaction strategy instruction on learner engagement in peer interaction. *System, 91,* 102-244.

Abstract

This study investigated the effect of interaction strategy instruction on learner engagement in peer interaction. The instruction was designed based on previous strategy training models, including five stages: *Preparation* (raising awareness of collaboration and interaction strategies), *Presentation* (presenting and analysing strategies), *Practice* (applying strategies in interaction), *Self-evaluation* (self-evaluating and reflecting on strategy use), and *Expansion* (continuing practising strategies). Fifty-six EFL learners (M_{age} = 15.57, *SD* = 3.35) were divided into two equal groups (n = 28 in each), with only the treatment group receiving the interaction strategy instruction. Scores for learner engagement, gauged by multiple measures (idea units, LREs, instances of talk encouragement, reflection/development of ideas, enjoyment time and reported

emotion), were compared from pre- to post-test and between the two groups. The results showed that interaction strategy instruction promoted greater generation of idea units, LREs, instances of talk encouragement and reflection, and positive emotion in both tasks. However, factors such as task features, perceptions of peers, and proficiency affected the learners' use of strategies. Learners also rated highly the usefulness of interaction strategy instruction for promoting effective interaction. The results indicate the benefits of interaction strategy instruction for enhancing the quality of peer interaction.

Key words: learner engagement; interaction strategy instruction; pedagogical intervention; peer interaction

Introduction

Training second language (L2) learners to interact effectively with peers is receiving growing attention in L2 interaction research. One of the primary goals of pedagogical training is to address the shortcomings of learner-learner (peer) interaction (e.g. insufficient attention to form, infrequent interactional feedback, non-collaboration) and consequently maximise L2 learning opportunities such as practising language use, discussing language form, providing and receiving feedback, and/or engaging in collaborative learning (Philp, Adams, & Iwashita, 2014; Sato & Ballinger, 2016). Recent studies on teaching learners about effective peer interaction have shown a positive impact on L2 interaction and learning (Fuji, Ziegler, & Mackey, 2016; Kim & McDonough, 2011; Sato, in press; Sato & Ballinger, 2012; Sato & Loewen, 2018; Sato & Lyster, 2012).

Although they mention the social aspect, these studies have largely targeted the cognitive aspects of peer interaction, specifically focusing on teaching learners to provide peer feedback (Sato & Ballinger, 2012; Sato & Loewen, 2018; Sato & Lyster, 2012), use interactional moves (Fuji et al., 2016), or discuss and resolve language-related problems (Kim & McDonough, 2011). Sato's (in press) investigation of the impact of metacognitive instruction for collaborative interaction appears to be one among very few studies that target social aspects (e.g. raising learners' awareness of the benefits of peer interaction and a collaborative mindset) (also see Sato & Loewen, 2018). Given that peer interaction is a cognitive, social, and affective phenomenon that is susceptible to social, individual, and contextual factors (Sato, 2017a; see also Adams & Oliver, 2019; Philp et al., 2014; Sato & Ballinger, 2016), pedagogical interventions that aim to enhance its quality need to attend to different aspects of peer interaction (cognitive, social, and affective).

In addition, pedagogical interventions in previous studies have tended to focus on certain 'strategies' (e.g. providing feedback, negotiating for meaning and form, discussing language-

related problems), thereby limiting learners from combining these strategies with other interaction strategies that may enhance the quality of peer interaction. Situated in this line of research and to address these issues, the current study used interaction strategy instruction to promote learner engagement in interaction. The interaction strategy instruction designed in this study aimed to raise learners' awareness of collaboration (social aspect), increase attention to task content and language (cognitive aspect), and promote task enjoyment (affective aspect). Although it introduces different interaction strategies, this strategy instruction gave learners the flexibility to use a combination of strategies that they found helpful and easy to apply in interaction. The study therefore adds to the current set of pedagogical interventions that seek to promote effective peer interaction.

Peer interaction: benefits and shortcomings

Previous research has suggested that peer interaction brings a number of psycholinguistic benefits for L2 learning. For example, peer interaction is a versatile context in which learners can engage with L2 learning opportunities such as receiving modified input, noticing language errors, producing output, negotiating for meaning, and giving and obtaining interactional feedback (Mackey, 2012; Mackey & Gass, 2006). Philp et al. (2014) postulated that peer interaction provides learners with opportunities to experiment, correct, and polish language. Additionally, peer interaction is believed to be less stressful since it is not as carefully monitored as teacher-learner interaction, and therefore it may reduce the cognitive load for processing input and output, and help learners to notice errors, modify their output when offered feedback, potentially worry less about making errors, and produce more language (Sato & Loewen, 2018; Sato, 2013). These benefits of peer interaction for L2 learning have been evidenced in a number of recent studies (see Adams, 2007; Iwashita, 2003; McDonough, 2004; Sato & Lyster, 2012; Sipple & Jackson, 2015).

However, peer interaction also shows limitations that may decrease its positive impact. For instance, Philp, Walter, and Basturkmen (2010) found that learners rarely attend to language form. This lack of attention to form has been documented in numerous studies (García Mayo & Pica, 2000; see also Philp et al., 2014, Sato & Ballinger, 2016 for recent reviews). In addition, the low quality, infrequency, and unfocused nature of peer feedback are seen as another issue (see Adams, Nuevo, & Egi, 2011). Furthermore, when learners share their first language (L1), they tend to use more L1 in peer interaction (Guk & Kellogg, 2007; Kang, 2005). This often occurs in peer interaction when learners are of low proficiency levels (Storch & Aldosari, 2010) or when they lack confidence to talk (Yoshida, 2013) and/or choose not to speak the target language (Tomita & Spada, 2013). It has been suggested that L1 use may aid L2 learning to a certain extent, but the extent to which L1 should be used in peer interaction is still under discussion (Kellerman, 1995; Storch & Wigglesworth, 2003).

As noted earlier, peer interaction is a social and affective phenomenon, and therefore it is vulnerable to social, contextual, and individual factors. For example, peer interaction may not facilitate L2 learning when learners show non-collaborative interactional patterns (Storch, 2002). Additionally, Sato (2017b) asserted that learners with a less collaborative mindset would engage less in task performance and therefore not benefit much from peer interaction compared with those exhibiting a more collaborative attitude. Furthermore, although peer interaction may create opportunities for producing language, learners might opt not to talk in the target language due to a perception that this is 'showing off' (Tomita & Spada, 2013), or due to their approach to some tasks in which they perceived certain behaviours (e.g. providing feedback) were not necessary (Philp & Mackey, 2010). As a result, avoidance of using the target language limits the practice of language use and inhibits active participation in interaction. Finally, although learners may be more comfortable in peer interaction, this is not necessarily stable, and may be susceptible to

change due to social relationships established during the interaction and perceptions of their partners' behaviour and proficiency level (Storch, 2002; Watanabe & Swain, 2007).

To overcome these limitations of peer interaction, researchers have recently emphasised the need to deliver pedagogical interventions to enhance its quality. The next section reviews studies that have employed pedagogical interventions to improve peer interaction.

Pedagogical interventions in peer interaction

Recent research has reported that pedagogical interventions positively affected peer interaction. For instance, Kim and McDonough (2011) used pre-task modelling to elicit collaborative learning opportunities. They found that learners who watched pre-task modelling demonstrated more collaborative dynamics and generated more language-related episodes or LREs (i.e. time-outs for discussion of language form during a meaning-based interaction) (Swain & Lapkin, 1998). In Sato and Lyster's (2012) study, learners were taught to provide feedback and the results showed improved fluency and accuracy. In similar studies, Sato (2013) found that teaching corrective feedback increased learners' trust, willingness, and confidence to provide feedback, but linguistic features appeared to moderate feedback effectiveness (Loewen & Sato, 2018). Apart from teaching feedback, Sato and Ballinger (2012) raised learners' awareness about peer language learning strategies (e.g. encouraging learners to talk, seek, and offer language help). This teaching resulted in higher frequency of feedback, improved accuracy, a greater amount of interaction, and more collaborative dynamics.

Focusing on interactional opportunities, Fuji et al. (2016) raised learners' awareness of effective interaction through the explanation and practice of negotiation moves. The results indicated learners' increased recognition of the benefits and provision of interactional feedback (e.g. clarification requests, comprehension checks, and recasts) and learning opportunities (e.g. modified outputs). Also focusing on enhancing collaborative interaction, Sato (in press) used a metacognitive instruction that aimed to develop learners' metacognition (e.g. knowledge about

the task, the learners themselves, and their partners, and about the strategies used during interaction) in order to enhance their use of strategies (e.g. comprehension checks, clarification requests, seeking help) and impact positively upon comprehensibility (e.g. listeners' perceived degree of ease and difficulty in understanding speech). The study showed that after the metacognitive intervention, the learners increased their use of strategies and improved their speech comprehensibility. Involving learners in a multiple-staged reflective activity (e.g. reflecting on previous interaction experience) has also been reported to increase learner attention to form (e.g. self-correction and metalinguistic talk) (Dao, 2019a). In sum, the studies have suggested that pedagogical interventions promote the effectiveness of peer interaction, which may result in L2 learning.

However, as noted earlier, the previous pedagogical interventions pre-selected certain strategies (e.g. corrective feedback, negotiation moves, clarification requests, comprehension checks, and LREs) without asking how the learners perceived these interaction strategies and whether they worked for all learners. Additionally, they did not explicitly focus on the different dimensions of peer interaction (cognitive, social, and affective). To address these issues, this study employs an interaction strategy instruction that targets different aspects of peer interaction to enhance its quality. More specifically, the instruction in this study focuses on promoting different aspects of learner engagement.

The next section discusses the concept of learner engagement and reviews recent engagement studies.

Learner engagement in peer interaction

In recent L2 research, engagement, defined as learners' intense involvement in task performance, is perceived as a multi-dimensional construct, featuring different aspects such as cognitive, social, emotional, and behavioural (Philp & Duchesne, 2016; Svalberg, 2009; also see Lambert, 2017). While cognitive engagement reflects learners' heightened attention and mental

effort, social engagement indicates learners' mutuality and reciprocity during interaction. Emotional engagement manifests in a variety of emotions (e.g. enjoyment, excitement, interest or boredom, tediousness, and so on). Additionally, behavioural engagement is described as on- and/or off-task participation. It should be noted that these subcomponents of engagement are interconnected, despite being conceptualised as separate aspects, and that behavioural engagement could be seen as a reflection of cognitive, emotional, and social engagement (see Reeve, 2012; Reschly & Wylie, 2012).

Following these conceptualisations, a few studies on learner engagement have emerged (Dao, 2019b; Dao & McDonough, 2018; Lambert, Philp, & Nakamura, 2017; Qiu & Lo, 2017; Phung, 2017). Collectively, these recent engagement studies have found that task features (e.g. teacher/learner-generated task content, task goals), task conditions (e.g. repetition), and individual factors (e.g. proficiency) all affected different dimensions of learner engagement (cognitive, social, and emotional). Notably, different measures were used in these studies to measure cognitive engagement (e.g. negotiation moves, elaborative talk, idea unit, episodes of language discussion), social engagement (e.g. responsiveness, willingness to be involved in conversation, backchannels), and emotional engagement (e.g. task enjoyment and self-reports). However, despite operationalising the subcomponents of engagement differently, these studies converge to suggest that learner engagement is multifaceted. Thus, future interaction research needs to attend to the multidimensional nature of the construct of learner engagement.

The next section reviews L2 learning strategy instruction research and proposes that strategy instruction could potentially enhance learner engagement.

Second language interaction strategy instruction

Along with attempts to identify effective L2 learning strategies through examining characteristics of 'a good language learner' (Chamot, 2001; Cohen, 1998; Griffiths & Oxford, 2014; O'Malley & Chamot, 1990; Oxford, 1990; Oxford, 2011), L2 researchers/instructors have

trained learners to use these effective strategies. Despite several proposals for strategy training, such as CALLA (the Cognitive Academic Language Learning Approach) (O'Malley & Chamot, 1990) and Macaro's (2001) learner strategies training cycle (also see Anderson, 2003; Grenfell & Harris, 1999), all these approaches converge on a similar training procedure that includes three phases: pre-training (e.g. raising learners' awareness and exploring strategies), while-training (learning the strategies through presentation and modelling, and applying them), and post-training (e.g. evaluating and continuing to practise strategies). It should be noted that these strategy instructions differ from metacognitive instruction, where the goal is to develop the learners' knowledge about their own cognition (i.e. knowledge of strategies perceived as likely to be effective for performing a task and/or achieving a goal) and the regulation of cognition (i.e. what learners do about learning and/or how they monitor their cognitive processes) (see Brown, 1987; Flavell, 1979; Veenman, Van Hout-Wolters, & Afflerbach, 2006). Strategy instruction tends to be focused on developing learners' strategy knowledge (i.e. their use of strategies perceived as effective for communication or performance), which does not encompass other components of metacognition such as knowledge about the people involved (e.g. the learners themselves and their partners) and the task (e.g. knowledge of resources available to execute an activity) (see Flavell, 1979).

Some previous research has suggested that learning strategy instruction benefits L2 learners by promoting adaptive and personalised learning behaviours (Chamot & Rubin, 1994; Cohen & Macaro, 2007; Griffiths, 2013; Griffiths & Oxford, 2014). However, strategy instruction to date has focused only on teaching general L2 learning strategies. Thus, little is known about whether instruction that is focused on interaction strategies would promote learner engagement in peer interaction. This therefore warrants more research in this area.

The current study

As discussed earlier, different pedagogical interventions have been conducted to address the limitations of peer interaction. However, they have primarily targeted the cognitive aspects of peer interaction, focusing specifically on corrective feedback, LREs, and negation for meaning and form (with the exception of Sato, in press). To address these issues, the current study employed a strategy instruction that was targeted at: a) raising learners' awareness about collaboration (the social dimension), b) increasing their attention to task content and language (the cognitive dimension), and c) promoting interaction enjoyment (the affective dimension). In addition, the strategy instruction did not limit the use of certain interaction strategies; rather, it allowed learners to introduce, select, and combine strategies that they believed would work effectively for themselves. It was expected that this kind of interaction strategy instruction would positively affect learner engagement in peer interaction. To examine this possibility, this study investigated the impact of this interaction strategy instruction on peer interaction through the lens of learner engagement. The following research questions were formulated.

Research questions

To what extent does the strategy instruction affect learner engagement in peer interaction? More specifically, the study addresses the following questions.

a. Does the strategy instruction affect the occurrence of LREs and idea units (cognitive engagement) in peer interaction?
b. Does the strategy instruction affect learners' responsiveness (social engagement) in peer interaction?
c. Does the strategy instruction affect learners' enjoyment and reported emotion (emotional engagement) in peer interaction?

Method

Participants

The participants were 56 (31 females) young adult learners (M_{age} = 15.57, *SD* = 3.35), recruited from a 420-hour English program at a private language center in Vietnam. At the time of data collection, they were 6th, 7th, and 8th graders at different secondary schools, but they were classmates in the English program whose goal was to develop English conversational skills.

The participants were randomly assigned into two equal groups (n = 28 in each). They had similar English proficiency levels based on a TOEIC test [$t(54) = 1.52$, p =.13, d = .04; treatment group (M=473.04, *SD*=191.51) and control group (M=480.75, *SD*=115.43)]. They reported that they had learnt English for a mean of 7.93 years (*SD* = 2.72), and none of them had ever visited an English-speaking country before.

Design

The study employed a pre/post-test design to examine the impact of interaction strategy instruction (see description below) on learner engagement. Following previous theoretical frameworks that perceived engagement as a multifaceted construct (Philp & Duchesne, 2016; Svalberg, 2009), learner engagement was operationalised as learners' intensity of involvement in interaction that manifests across multiple dimensions (cognitive, social, and emotional). While cognitive engagement refers to the level of attention to language and task content (Helme & Clarke, 2001; Storch, 2008; Toth, Wagner, & Moranski, 2013), social engagement is perceived as responsiveness in interaction (see Storch, 2002), and emotional engagement involves the learners' emotions evoked during interaction, which includes positive (e.g. enjoyment, excitement, interest) and negative (e.g. boredom, tediousness) aspects (see Skinner, Kindermann, & Furrer, 2009).

Interaction strategy instruction

Previous efforts to develop L2 learning strategy training include the CALLA model (Chamot, 2005; Chamot & O'Malley, 1987) and Macaro's (2001) strategy training cycle, which often feature a multi-staged procedure. Adapting these general L2 learning strategy training

procedures to the context of peer interaction, a potentially effective interaction strategy instruction could include five stages: *Preparation* (i.e. raising learners' awareness of collaboration and eliciting interaction strategies), *Presentation* (i.e. presenting previously used interaction strategies and introducing new strategies where relevant), *Practice* (i.e. practising strategies that learners perceive as helpful and easy to use), *Self-evaluation* (i.e. reflecting on strategy use and re-selecting strategies that have worked), and *Expansion* (i.e. additionally practising the re-selected strategies).

Specifically, in Stage 1 (*Preparation*), the teacher asked learners to state and discuss strategies that they had used previously during pair/group interaction. The teacher used prompt questions (Appendix 1) to elicit learners' discussion of their strategies and awareness of collaboration. In Stage 2 (*Presentation*), learners presented the strategies that they had discussed to the whole class. The teacher then classified the interaction strategies into types: metacognitive (e.g. task planning, selective attention, and self-evaluation), cognitive (e.g. self-monitoring, noticing, and self-talking), social (e.g. collaboration and comprehension questions), and affective (e.g. creating fun talk and showing enjoyment) (Appendix 2).

After the presentations, the teacher provided two interaction excerpts to analyse how learners used interaction strategies. The interaction strategies analysed in these excerpts were based on Fuji et al.'s (2016) research on instruction in conversational strategies. The analysis of strategies was to respond to Chamot and O'Malley's (1996) suggestion that this was one of the most effective ways to encourage learners to model a subsequent use of strategies. At the end of this activity, the teacher explicitly stressed the importance and benefit of carrying out tasks collaboratively through: (1) idea-sharing, (2) asking and answering questions, (3) providing feedback, and (4) collaboratively resolving problems. This also served to raise learners' awareness of effective interaction.

In Stage 3 (*Practice*), learners practised the strategies by performing interactive tasks. They were asked to try out strategies and identify which ones worked effectively for them. In Stage 4 (*Self-evaluation*), they self-evaluated their experience and re-selected strategies that they perceived as being effective for themselves. They were additionally asked to reflect on their interaction using prompt questions (Appendix 1). The aim was to consolidate the learners' knowledge of their perceived-as-effective strategies and continue raising awareness of collaboration. Finally, in Stage 5 (*Expansion*) they were asked to apply the strategies in additional interactions.

Materials

The materials included two task types, namely picture/video-based story-recount and discussion tasks. For pre/post-tests, two similar versions of a picture-based story-recount and a discussion task were used. The picture-based story-recount asked dyads of learners to co-construct a story based on ten pictures. Pictures of both task versions featured similar activities (travel accidents) to control for topic difference. The discussion task requested learners to discuss problems and solutions related to Vietnamese social issues. Discussion topics were the social problems of Vietnamese adolescents versus those of modern families.

Tasks used in Stage 3 (*Practice*) included a video-based story-recount, a convergent discussion task, and a scenario-based discussion task. In the video-based story-recount task, learners watched a three-minute beginning segment of *The Great Toy Robbery* cartoon, retold the segment, and finally engaged in discussion to create an ending to the story. The convergent discussion task asked learners to discuss and plan a surprise birthday party for a close friend. The scenario-based discussion task involved a debate between two children who were arguing about whether their mother should be sent to a nursing home.

The materials also included an emotional engagement questionnaire, an exit questionnaire, and a focus-group interview. The emotional engagement questionnaire consisted

of five questions investigating learners' emotions by asking them to indicate on a five-point Likert scale their level of enjoyment, interest, excitement, tediousness, and boredom (Appendix 3). The exit questionnaire explored learners' perceptions of the impact interaction strategy instruction on their engagement, including one self-rating item which asked the learners to indicate the perceived effectiveness of the instruction on a five-point Likert scale, and five open-ended questions (Appendix 4). The focus-group interviews, which were conducted in the learners' L1 (i.e. Vietnamese), further explored their perceptions of the strategy instruction and its impact on learner engagement. Interview questions included: '*How did you feel during the interaction?*' (emotional engagement), '*What did you think and/or pay attention to during the interaction*?' (cognitive engagement), '*Did you feel included and responsive in the interaction?*' (social engagement), and follow-up questions.

Procedure

Data collection took place over a three-day period, scheduled independently of learners' regular classes (Table 1).

Table 1

Procedure

Day	Treatment group	Control group
1	Background questionnaire	
	Pre-tests: Picture-based story-recount and discussion task (version 1)	
	Emotional engagement questionnaire after each task	
2	*Interaction strategy instruction* • *Preparation* (20 minutes): small-group discussion of interaction strategies • *Presentation* (20 minutes): presenting strategies to the whole class under teachers' guidance • *Practice* (60 minutes): applying strategies in tasks - Video-based story-recount - Convergent discussion task - Scenario-based task • *Self-evaluation* (20 minutes): reflect on interactions and the strategy use • *Expansion*: apply in additional tasks (post-tests)	No treatment - Video-based story-recount - Convergent discussion task - Scenario-based task
3	Post-tests: Picture-based story-recount and discussion task (version 2)	
	Emotional engagement questionnaire after each task	
	Exit questionnaire Focus-group interview	

On Day 1, learners completed a background questionnaire and performed a picture-based story-recount and a discussion task (version 1) as pre-tests. They completed an emotional questionnaire after each task. On Day 2, the treatment group received the interaction strategy instruction with each stage lasting for 20 minutes except the *Practice* stage (60 minutes), during which they performed three tasks. The control group did the same tasks that the treatment group performed in the *Practice* stage in order to control for practice effects, but they did not receive the strategy instruction. Since the learners met for only 120 minutes per day, the *Expansion* stage was conducted on Day 3. Both control and treatment groups performed post-test tasks and

completed the emotional engagement questionnaire, but only the treatment group attended focus-group interviews.

Analysis

Audio-recorded interactions during the pre/post-tests were transcribed by a research assistant and verified by the author. The transcripts were coded for evidence of engagement. Cognitive engagement was operationalised as learners' attention to language and discussion of task content, measured by LREs and idea units, respectively. Following Swain and Lapkin (1998), an LRE was defined as a talk segment in which learners talked about language use/production and corrected language errors. Excerpt 1 (Pair 7, Picture-based story-recount) demonstrates an LRE where a learner seeks help with a lexical item.

Excerpt 1. An LRE (cognitive engagement)

1	P1:	Uh next day they uh, sắp xếp vào xe là cái gì? [*what is "pack into the car"?*]
2	P2:	Next day they uh to put put the put put the…
3	P1:	the things
4	P2:	put the things in in the car

In Excerpt 1, learner P1 used his L1 to seek help in relation to a lexical item '*pack into the car*' (line 1). Learner P2 responded by prompting '*put*' in the next utterance (line 2), which was subsequently completed by learner P1 (line 3), later repeated (*put the things*) and expanded (*in the car*) by learner P2 (line 4).

An idea unit was defined as a segment of information, an idea, or a comment about a theme under discussion (McCarthy, 1991; Shin, Lidster, Sabraw & Yeager, 2016). Different from LREs that targeted language form, idea units tapped into content that was produced.

Excerpt 2 (Pair 18, Discussion task) illustrates an example of idea units. There are four ideas units in this excerpt: comment on necessity, suggestion, idea correction, and reminder of previous information.

Excerpt 2. Idea units (cognitive engagement)

1	P2:	We need to give more detail about it (‘*comment on necessity’ – idea unit 1*)
2	P1:	Ok, what about parent and their children, their kid, conflict does happen (‘*suggestion’ – idea unit 2*)
3	P1:	No, that the second problem (‘*idea correction’ – idea unit 3*)
4	P1:	Yes, and the first problem I would like to mention to the conflict between husband and wife (‘*reminder of previous information*’ – *idea unit 4*)

Social engagement was operationalised as learners’ responsiveness in interaction, manifesting mutuality or reciprocity (Storch, 2002). Measures of responsiveness were talk segments where learners responded and engaged with their partner’s contribution as shown in their comments, reflections, and/or development of their partner’s previous ideas, and by encouraging a partner to talk. An example of social engagement was shown in Excerpt 3 (Pair 17, Picture-based story-recount).

Excerpt 3. Responsiveness: Reflecting on a partner’s idea (social engagement)

1	P2:	Uh, I think they forgot about these stuff and they collect it later
2	P1:	No, I think because the their car are is heavy, you know…that so they have to drop the stuff, not forgot then collect

In Excerpt 3, learner P2 described a picture in which he thought the travellers *forgot* their travelling items on the beach and thus came back to *collect* them. However, his partner *responded* that the travellers had actually *dropped the stuff* instead of *forgetting then collecting.* This comment demonstrated that learner P1 responded and engaged with his partner's previous idea.

Emotional engagement was measured by the duration of task enjoyment episodes, during which learners expressed explicitly enjoyment in the interaction. To identify task enjoyment episodes, the coder listened to the recordings, noted episodes of talk where learners laughed and/or had fun talking, and then calculated their duration. Excerpt 4 (Pair 8, Discussion task) shows an episode of task enjoyment.

Excerpt 4. A laugh episode: task enjoyment (emotional engagement)

1	P1:	… uh the first problem is about the money [*laugh*]… my our parents always … [*laugh*] [*laugh*] cãi lộn là gì? [*what is 'quarrel'?*] Ba mẹ biết mình nói vậy là chắc chết[laugh] [*if my parents know that I am talking about this I will die*]
2	P2:	Haha [*laugh*] 'cãi lộn' is have a, have a an argument, have an argument [*laugh*] and uh… about the money… I think we …[*laugh*]

In Excerpt 4, learner P1 showed task enjoyment when talking about her parents' '*quarrel*'. She laughed and joked: '*if my parents know that I am talking about this I will die*' (line 1). This made learner P2 laugh accordingly (line 2). The duration of this task enjoyment instance was calculated from its beginning ['*uh the first*' (line 1)] to the end of the final utterance ['*I think we*' (line 2)].

For inter-rater reliability, a second rater independently coded 20% of the dataset for frequency of LREs, idea units, instances of responsiveness (e.g. talk encouragement,

reflection/development of partner's ideas), and duration of task enjoyment. Pearson correlations between the two coders in terms of the frequencies of all engagement measures were .95 (LREs), .87 (idea units), .86 (task enjoyment time), .95 (talk encouragement), and .93 (reflection/development on partner's ideas). To examine the impact of the interaction strategy instruction on each aspect of learner engagement (cognitive, social, and emotional), frequencies of idea units, LREs, task enjoyment duration, talk encouragement, and reflection/development instances were calculated per learner in interaction. To control for speech quantity differences, normalised (proportion) scores were obtained by dividing the sum of all identified instances by total words. The proportion scores of all engagement measures were then compared between the treatment and control groups using independent *t*-tests since the data met normality assumption, and Bonferroni corrections were also applied due to the use of multiple *t*-tests. Learners' interview and questionnaire responses were analysed using a content-based approach (Harwood, Gapp, & Steward, 2015) to further examine qualitatively the impact of strategy instruction on each dimension of learner engagement.

Results

Effect of the interaction strategy instruction

To determine the effect of interaction strategy instruction on learner engagement, frequency counts of all instances of idea units, LREs, talk encouragement, reflection and development per learner in interaction, and calculation of enjoyment duration and emotional questionnaire scores were conducted. Tables 2, 3, 4, and 5 present descriptive data (raw and normalised scores) for the pre/post-tests across two tasks.

Table 2

Picture-based story-recount: Means and standard deviations for pre-tests

	Metacognitive group (*n = 28*)				Control group (*n = 28*)							
	Raw		By words		Raw		By words					
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*t*	*df*	*p*	*d*
Idea units	22.14	11.80	.154	.111	28.96	21.34	.168	.105	.48	54	.63	.13
LREs	3.32	2.89	.021	.019	2.86	2.60	.014	.013	1.62	54	.11	.43
Reported emotion	3.32	.98	--	--	3.53	1.13	--	--	.754	54	.45	.21
Enjoyment time	1.46	2.26	.009	.013	1.46	2.16	.008	.009	.58	54	.56	.16
Talk encouragement	2.28	.188	.015	.014	2.39	4.48	.015	.017	.168	54	.86	.05
Reflection/ development	1.42	2.098	.008	.010	1.53	2.09	.005	.007	1.15	54	.25	.31

Table 3

Picture-based story-recount: Means and standard deviations for post-tests

	Metacognitive group (*n = 28*)				Control group (*n = 28*)							
	Raw		By words		Raw		By words					
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*t*	*df*	*p*	*d*
Idea units	34.46	30.13	.221	.142	25.78	14.41	.173	.077	1.57	54	.12	.42
LREs	4.96	2.20	.034	.014	2.67	2.48	.019	.021	2.97	54	.004	.84
Reported emotion	3.82	.86	--	--	3.28	1.21	--	--	1.90	54	.06	.51
Enjoyment time	1.07	2.17	.005	.010	.357	.621	.001	.006	1.73	54	.08	.48
Talk encouragement	2.86	2.33	.019	.016	1.67	2.91	.006	.010	3.40	54	.001	.97
Reflection/ development	2.42	2.06	.016	.013	1.14	1.29	.007	.013	2.34	54	.02	.69

For picture-based story-recounts, independent *t*-tests with an adjusted alpha at .008 (.05/6) showed that on the pre-test scores, there were no significant differences between the two groups

across all the measures of engagement: idea units (p = .63, d =.13), LREs (p =.11, d =.43), reported emotion ((p =.45, d =.21), enjoyment time (p =.56, d =.16), or talk encouragement (p =.86, d =.05), reflection/development (p = .25, d =.31) (see Table 2). However, the post-test results (see Table 3) revealed that after the strategy instruction the treatment group's proportion scores were significantly higher than those of the control group on two measures (Bonferroni corrections): LREs (p =.004, d =.84) and talk encouragement (p < .001, d =.97), with both d values showing large effect sizes (greater than .80) based on Cohen's (1988) framework of interpreting the magnitude of the effect (also see Sawilowsky, 2009).

Table 4

Discussion task: Means and standard deviations for pre-tests

	Metacognitive group (*n = 28*)				Control group (*n = 28*)							
	Raw		By words		Raw		By words					
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*t*	*df*	*p*	*d*
Idea units	45.57	43.54	1.46	.055	24.32	21.36	.121	.052	1.76	54	.08	.48
LREs	3.92	2.99	.030	.038	2.53	2.64	.010	.012	2.63	54	.01	.75
Reported emotion	2.85	.848	--	--	2.89	.785	--	--	.163	54	.87	.04
Enjoyment time	.642	.989	.003	.008	2.03	4.56	.006	.014	.853	54	.38	.23
Talk encouragement	2.35	2.46	.018	.028	4.53	4.07	.016	.019	.329	54	.74	.09
Reflection/ development	1.85	2.28	.011	.015	2.21	3.11	.006	.008	1.48	54	.14	.40

Table 5

Discussion task: Means and standard deviations for post-tests

	Metacognitive group (*n = 28*)				Control group (*n = 28*)							
	Raw		By words		Raw		By words					
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*t*	*df*	*p*	*d*
Idea units	60.67	64.16	.156	.034	30.46	20.26	.126	.042	2.91	54	.005	.79
LREs	4.11	2.63	.028	.033	1.21	1.34	.006	.009	3.29	54	.002	.90
Reported emotion	3.82	.86	--	--	2.75	.44	--	--	5.85	54	.001	1.60
Enjoyment time	2.21	4.45	.007	.014	.57	1.25	.002	.005	1.58	54	.12	.43
Talk encouragement	4.71	2.73	.025	.023	4.14	3.96	.012	.010	2.52	54	.02	.69
Reflection/ development	4.50	3.93	.020	.020	2.67	3.55	.006	.010	3.12	54	.003	.85

Similarly, for the discussion task no significant differences were observed between the two groups on the pre-tests at an alpha level of .008 (Bonferroni corrections) across all measures: idea units (p =.08,, d =.48), LREs (p =.01, d =.75), reported emotion (p =.87, d =.04), enjoyment time (p =.38, d =.23), talk encouragement (p =.74, d =.09), reflection/development (p =.14, d =.40) (see Table 4). However, as presented in Table 5, the treatment groups' post-test scores of idea units (p = .005, d =.79), LREs (p = .002, d = .90), reported emotion (p < .001, d =1.60), and reflection/development (p =.003, d =.85) were significantly higher than the control group, with the magnitude of the effects ranging from being large (e.g. d = .79; d = .85) to very large (d = 1.6) (see Cohen, 1988; Sawilowsky, 2009).

Learners' perceptions of the impact of interaction strategy instruction

Perceived usefulness

To explore the perceived usefulness of interaction strategy instruction, learners' responses in the exit questionnaire and focus-group interviews were analysed. Overall, the learners highly rated the usefulness of the interaction strategy instruction for their interaction

(*M*=4.57*, SD*= .49). When asked to explain the aspects of the interaction for which the strategy instruction was most useful, four major themes were identified: a) enhancing interaction effectiveness, b) promoting collaborative interaction, c) increasing cognitive thinking, and d) developing problem-solving skills in interaction. Specifically, all learners reported that the strategy instruction enabled them to be more effective in interaction. One participant shared: "*The training [strategy instruction] was very helpful since we learnt from friends and the teacher a lot of strategies to talk and communicate effectively. We [myself and my partner] could practise speaking English a lot, talked more and produced more language, expressed [our] ideas more clearly, used and learnt more vocabulary from partners, and improved [our] pronunciation*" (Participant 7A, Pair 7). Over 95 % of the participants expressed that the strategy instruction encouraged them to be more collaborative in interaction. One participant commented: "*It [the strategy instruction] was very helpful for pair work because I could learn how to listen to friends, how to discuss with them. It was really good for group work because I could understand friends more and became more active and collaborative when working with them [friends]*" (Participant 12A, Pair 12).

Approximately 85% and 82% of the participants respectively stated that the strategy instruction *increased their cognitive thinking* and *developed problem-solving skills in interaction.* One participant's response evidenced this reported increase in cognitive thinking: "*Before I spoke and started the conversation, I thought a lot and planned ideas and language carefully. I just wanted it [language] to be good. I thought more and imagined more. I also thought about my partner's ideas. It increased our curiosity a lot when we thought of interesting ideas to exchange*" (Participant 3A, Pair 3). Another participant's comment demonstrated the development of problem-solving skills in interaction: "*Since we learnt different strategies, so we were very sensitive in all situations. We knew how to deal with unexpected situations, especially when we did not understand and disagreed with each other. We had to resolve the problems*

quickly in order to complete the task, so we were always concentrated on the interaction and avoided distractions or disagreements. This was something we learnt in the training [strategy instruction] and applied them in interactions later" (Participant 15A, Pair 15).

Strategy use and its perceived impact on engagement

When asked about what was learnt in the interaction strategy instruction, the learners reported that they learnt various strategies, which then affected different aspects of their interaction. Regarding the cognitive aspect, they reported that they had learnt different 'cognitive and metacognitive' strategies which could be classified into two groups: task-related strategies (e.g. planning and preparing the procedure for smooth performance, and focusing on exchanging ideas), and language-related strategies (e.g. preparing language such as vocabulary and grammar before talking, listening and paying attention to each other's language, providing and responding to feedback, and self- and other-correcting errors). One learner stated: "*I learnt different strategies from the training [strategy instruction] and used them during the conversation. For example, we planned the step-by-step procedure… like how to carry out the task, who said first and who said later to make sure the task would proceed smoothly. We also planned our language and asked each other about any vocabulary and grammar if we did not know*" (Participant 1B, Pair 1). This exemplary comment showed that the use of these 'cognitive and metacognitive' strategies increased their cognitive engagement in both language and task content.

With regard to the social aspects of interaction, the participants reported that they had learnt and used three 'social' strategies: seeking and providing help, listening and respecting each other's opinions, and showing a collaborative attitude. One learner expressed: "*I often asked for help from my partner, for example about vocabulary, because he knew English better than me. When I had [language] troubles I asked him right away rather than 'self-thinking' or being silent. Also, I trusted him, so I always listened and agreed with his opinions*" (Participant

14B, Pair 14). Another participant commented: "*Definitely when my friend asked for help, I always responded. You know, to work well and complete the task, we needed to be collaborative. Also, since we practised our English while talking so I always paid attention to my partner's errors to help him. I know he would not mind when I corrected his errors. It was good for him and for me too, since I also practised listening to him*" (Participant 13A, Pair 13). These quotes indicated that the learners were socially engaged with each other and used 'social' strategies in interaction.

As for the emotional aspect, the participants reported that they had 'cheered each other up' and had fun during their interaction. One learner stated: "*My partner was very sad when we started doing the task because he lost his wallet and stuff on the way here. He was really sad and did not want to talk. So, I encouraged him to talk, cheered him up and I talked about funny ideas. In the end, we laughed, and he became happy and forgot about his lost stuff*" (Participant 17B, Pair 17). Another learner shared: "*We didn't have to use any special strategies. We just needed to show that we were interested in each other's ideas and showed collaborative attitude with each other, helped each other, and were focused on the task, then everybody would be happy*" (Participant 2B, Pair 2). The comments clearly demonstrated that learners used 'emotion strategies' such as '*cheering each other up*' and '*showing interest and collaborative attitude*', which was reported to help them to be emotionally positive in their interaction.

Issues of strategy instruction

Although acknowledging the benefits of strategy instruction, the learners did report some issues when applying the strategies. The first issue was related to task type. One learner commented: "*There were a lot of strategies to learn but it was not always easy to use them all in all tasks. For me, the discussion task was easy to apply strategies such as listening to each other, paying attention to language, and asking for help, but the task planning strategy was not useful because we did not have to plan the procedure of the task. We just started right away and*

discussed the issue. But for the picture task, we planned who did what and who said what" (Participant 3A, Pair 3).

The second issue was the learners' low proficiency, which was reported to constrain the frequent use of interaction strategies. One learner expressed: "*I agree that strategies in the training [strategy instruction] were useful, but my speaking skill was very weak. I lacked vocabulary and grammar, so I could not apply the strategies at all. Some of my friends also shared the same issue as me. I think the strategies were good, but probably it was not easy to use them all*" (Participant 10A, Pair 10).

Finally, perceptions of their partner's collaboration were reported as an issue. One participant shared: "*It all depended on the partner. If he tried and collaborated, then it would be easier to practise the strategies. But if he did not want, then it would not work. For example, I sometimes corrected my partner's errors, but he did not care much and kept talking, so I just said … okay … let's not care about the strategies … just complete the task*" (Participant 17B, Pair 17).

Discussion

Impact of strategy instruction on learner engagement

This study investigated the impact of interaction strategy instruction on learner engagement. The results revealed that after receiving strategy instruction, learners produced more LREs and were encouraged to talk more in the picture-based story-recount, and they generated more idea units, engaged in more reflection on their partner's ideas, and expressed more positive emotions in the discussion task. The results also indicated that strategy instruction positively affected different aspects of learner engagement (cognitive, social, and emotional).

These positive impacts could be ascribed to the intensity of the instruction, in which the learners went through multiple instructional stages such as discussing, presenting, practising,

self-evaluating, and expanding interaction strategies. It was likely that these consecutive activities enhanced the learners' use of interaction strategies, which subsequently promoted their engagement in interaction. Additionally, since the strategy instruction focused on multiple aspects of interaction (cognitive, social, and emotional), it appeared to positively affect different dimensions of learner engagement. It should be noted that although multiple instructional activities were implemented consecutively, the total instruction time was relatively short as compared to previous studies (e.g. Sato & Lyster, 2012). Therefore the positive impacts observed in the immediate post-tests in this study need to be confirmed in future research that employs delayed post-tests to examine whether they are sustained over time.

The strategy instruction was also self-rated as highly useful for interaction, and was reported to enhance interaction effectiveness, collaboration, cognitive thinking, and problem-solving skills. This supports the suggestion that pedagogical intervention is necessary to enhance the quality of peer interaction for the sake of facilitating L2 learning (Sato & Ballinger, 2016). These positive results also advocate for the inclusion of interaction strategy instruction in the current set of pedagogical interventions (Fuji et al., 2016; Kim & McDonough, 2011; Sato, in press; Sato & Loewen, 2018; Sato & Lyster, 2012) to increase peer interaction effectiveness.

Notably, more LREs occurred in both tasks after the strategy instruction. It was likely that interaction strategies such as attending to partners' language, providing feedback, and self- and other-correcting might have promoted the occurrence of LREs. Previous research reported that the frequency of LREs in peer interaction was relatively low since learners tended to focus on meaning rather than form (Philp et al., 2010; see also Sato & Ballinger, 2016). Our results suggest that interaction strategy instruction was effective in promoting learner attention to form. Additionally, although the learners did not show higher emotional engagement through behaviour as measured by enjoyment duration, they self-reported more positive emotions in the discussion task. The results support observations from previous research which note that it

seems to be challenging to capture learners' emotions through behaviours in interaction, but learners' self-reports may be effective in measuring this aspect (Dao, 2019b).

However, the positive impact of strategy instruction on learner engagement varied according to task features. In the picture-based story-recount, only the instances of LREs (cognitive engagement) and talk encouragement (social engagement) were significantly higher in the treatment group than in the control group at post-test. Meanwhile, in the discussion task the learners demonstrated a higher level of engagement across measures such as LREs and idea units (cognitive engagement), reflection on partner's ideas (social engagement), and reported positive emotion (emotional engagement). One possible reason for this is that the picture-based story-recount used a controlled input (i.e. pictures) which required learners to focus only on those materials. This might have limited the use of interaction strategies, thereby affecting their engagement. However, the discussion task allowed the learners to select topics for discussion (e.g. any social issues), which may have enhanced their use of the strategies learnt from the instruction.

Use of interaction strategies

Our self-reports revealed that learners used different strategies in subsequent interactions. They included metacognitive and cognitive strategies such as task-related (e.g. task planning and preparation) and language-related (e.g. preparing and attending to language, providing and receiving feedback) strategies, social strategies (e.g. seeking and providing assistance, listening and reflecting on each other's contribution, and demonstrating collaborative attitudes), and affective strategies (e.g. 'cheering up' and 'showing interest'). These results provide evidence that strategy instruction was conducive to the use of strategies, which is likely to promote effective peer interaction (Fuji et al., 2016).

Previous research has cautioned that the reported use of strategies does not simply equate to L2 learning (Macaro, 2006; Oxford, 2011). However, our learners' reported use of interaction

strategies that they perceived would suit them and their confirmation of the usefulness of strategies indicates that strategy instruction at least promoted their awareness of interaction strategy use, thereby increasing their language awareness (i.e. LREs) and collaboration (e.g. reflection on each other's contribution). This is important for enhancing peer interaction quality, given the often-reported low frequency of learner attention to form (Philp et al., 2010) and high levels of non-collaboration (Storch, 2011).

Additionally, the results showed that the use of strategies in interaction was affected by different factors. For instance, learners reported that each type of task would lead them to use a particular strategy in preference to others. As reported earlier, the task planning strategy was reported to be used in the picture-based story-recount, but not in the discussion task. The learners also did not report the use of self-talk (i.e. talking to oneself to mentally process language) or selective attention (i.e. deciding what aspect of the task or language to attend to) in any tasks. These results suggest that the use of interaction strategies depends on the task being performed.

Individual differences (e.g. proficiency and perceptions of their peers' collaboration) were also reported to affect strategy use. Learners admitted that their own perceived low proficiency prevented them from using interaction strategies. Strategies such as noticing and correcting peers' errors may be of little use for low proficiency learners; however, other strategies such as seeking help, asking for clarification, and checking comprehension were more frequently used. In addition, learners' perceptions of their peers' collaboration were reported to influence the level of strategy use. When learners perceived their peers' collaboration to be low, this could lead to the abandonment of strategy use, as reported in the Results section.

In sum, we find that although strategy instruction can increase strategy use, factors such as task type, proficiency, and perception of collaboration have been shown to affect the frequency of strategy use.

Raising awareness of interaction effectiveness through strategy instruction

One could argue that since the learners were given an opportunity to select their own interaction strategies, it may be difficult to judge which ones actually benefited their interactions. However, it seems important to raise learners' awareness about strategy use to generate effective interaction, rather than focusing on identifying which strategies worked effectively for the interaction (Oxford, 2011). Previous research has suggested that despite teaching specific strategies, teachers have limited control over learners' use of strategies since they may opt to use certain strategies over the others due to individual differences (Dörnyei & Ryan, 2015; Macaro, 2006; Oxford, 1990). The design of the strategy instruction in this study therefore allowed for some leeway, whereby learners were asked to add their previously used strategies to the instruction. Pedagogically, this flexibility tailors to individual differences and learning contexts, which have been reported to play an important role in determining how learners interact (Storch & Sato, 2019).

In addition, the analysis of the interaction excerpts from the strategy instruction do not only illustrate strategy use, but also served to raise learners' awareness of the importance of collaborative interaction, which is believed to be conducive to L2 learning (Storch, 2002). As reported above, although learners sometimes reported not using some cognitive strategies (e.g. providing feedback) in some tasks, they did show effort in using them to collaborate with partners. This indicates their increased awareness of collaboration, which possibly resulted in more effective interaction.

Conclusion

This study has examined whether interaction strategy instruction affects learner engagement. The results revealed the positive impact of instruction on learners' cognitive, social, and emotional engagement. The learners also perceived that the strategy instruction was

useful in promoting effective interaction, collaboration, cognitive thinking, and problem-solving skills. However, task features, proficiency, and perceptions of partner's collaboration appeared to affect the learners' strategy use and their engagement accordingly. Pedagogically, the results suggest that interaction strategy instruction could be a potentially useful tool for increasing peer interaction quality. However, factors such as task features, proficiency, and perceptions of peer collaboration need to be taken into account when implementing strategy instruction in order to generate optimal learning outcomes.

Despite these pedagogical implications, the study has some limitations. First, since the impact of the strategy instruction was observed only via immediate post-tests, it would be helpful for future research to use delayed post-tests (a longitudinal study) to examine whether the impact on learner engagement is sustained over time. Second, only learners of relatively low proficiency and two task types were included in this study. Thus, further research may need to include learners of different proficiency levels and different tasks to explore how the impact of the strategy instruction may vary.

Word count: 7920 (excluding references, appendices and abstract)

The author confirms that there is no conflict of interest in this manuscript.

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Appendix 1

Stage 1. Preparation - Prompt questions

1. What interaction strategies do you often use when working with peers despite your low proficiency?
2. How do you resolve difficulties (language and communication breakdowns) during interaction?
3. What strategies do you often use during interaction in the following situations?

   a) when you/your partner experience language or task-related problems

   b) when you/your partner has noticed language issues

   c) when you/your partner does not understand each other

   d) when your partner is not collaborating.

Stage 4. Self-evaluation – Prompt questions

1. How did you feel when using the strategies and why?
2. Did you ask clarification questions when you did not understand your partner and/or when your partner made a language error?
3. Did you try pointing out your partner's language errors and attempt to correct them?
4. Are there any factors affecting your interaction?

Appendix 2

Metacognitive, cognitive, social, and affective interaction strategies

	Description
Metacognitive interaction strategies	
Task planning	• Pre-planning and sequencing the steps of the task, preparing language, checking task instruction before task performance
Selective attention	• Deciding in advance what aspects of task and language to attend to during interaction
Self-evaluation	• Judging how well the task has been completed
Cognitive interaction strategies	
Self-monitoring	• Self-correcting language errors and reflecting on one's own language production
Noticing	• Focusing attention on peer's language production and correcting peer's errors or providing peer feedback • Focusing attention on peer's opinions (e.g., task contents)
Self-talking	• Talking to oneself during speech production in order to help mentally process language demands for the task
Social interaction strategies	
Collaboration	• Seeking and providing help, demonstrate collaborative attitude by collaboratively resolving emergent problems, pooling knowledge, providing and receiving feedback on task content and language issues
Comprehension questions	• Eliciting from a partner explanation, elaboration, examples, verification, and checking/confirming comprehension
Affective interaction strategies	
	• Creating fun talk (where possible) during task performance

- Showing explicit enjoyment attitude in interaction

Appendix 3

Emotion questionnaire

During the interaction, to what extent did you feel…?

a lot of enjoyment				no enjoyment at all
1	2	3	4	5
very interested				not interested at all
1	2	3	4	5
very enthusiastic				not enthusiastic at all
1	2	3	4	5
very bored				not bored at all
1	2	3	4	5
the task was very tedious				the task was not tedious at all
1	2	3	4	5

Appendix 4

Exit questionnaire

Circle the number to indicate the usefulness of the strategy training session for your interaction				
Not useful at all				*Very useful*
1	2	3	4	5

Open-ended questions

1. What did you learn from the training session? Please briefly specify.
2. Do you think that the training session was useful for your interaction with partners? Why or why not?
3. What were the main difficulties when you applied what you learnt (e.g. strategies) in interaction?
4. In which tasks did you find it difficult to apply what you had learnt (e.g. strategies) in interaction?
5. Do you have any suggestion for improving the training session?