Learners' Engagement in L2 Computer-Mediated Interaction: Chat Mode, Interlocutor Familiarity, and Text Quality

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This study investigated the impact of synchronous computer-mediated communication (SCMC) mode and familiarity with partners on learner engagement in second-language task-based interaction, and whether learner engagement is linked to subsequent joint-written-text quality. Ninety-eight Vietnamese learners of English were assigned into (±) familiar groups and performed a picture-sequencing tasks in 2 SCMC modes (i.e., video and text chat). Scores of 3 types of learner engagement (cognitive, social, and emotional) were compared across the conditions. Results showed that scores of all engagement types in the video chat were significantly higher than in the text chat. Familiar dyads also showed higher engagement than unfamiliar peers during the interaction. Learners reported different reasons for their preferences of video chat over text chat. Language-related episodes, semantically engaged talk, and mutual help as measures of learner engagement were predictive of the subsequent text quality. The results contribute to the general understanding of the characteristics of video and text chat and their impact on learner engagement and text quality.

Keywords: learner engagement; synchronous computer-mediated communication; learner familiarity; text quality; peer interaction

WITH THE ADVENT OF ONLINE LANGUAGE learning, digital platforms via which learners interact to learn a second language (L2) have become prevalent across diverse educational contexts. It is therefore important to consider and examine the possible effect of modes of synchronous computer-mediated communication (SCMC; e.g., text and video chat) that occur in these platforms on learners' interaction and L2 production (Baralt, Gurzynski–Weiss, & Kim, 2016; van der Zwaard, 2014, 2019; Yanguas, 2010, 2012; Yanguas & Bergin, 2018; Ziegler & Phung, 2019; Ziegler et al., 2020). Another aspect related to online L2 learning platforms is that L2 learners

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interact from a distance and often have little or no opportunity to get to know and become familiar with each other. This unfamiliarity among learners is suggested to negatively affect their online interaction and/or decrease their social presence (i.e., the state of 'being there'; Short, Williams, & Christie, 1976; Yamada & Akahori, 2007). However, little empirical evidence has been reported to shed light on the issue of learners' (un)familiarity in SCMC.

In addition, recently one of L2 teachers' and researchers' arising concerns has been learners' level of engagement with their peers in online interactions. Conceptualizing learner engagement in peer (learner–learner) interaction as a dynamic phenomenon with an inherently cognitive, social, and affective nature (Dao, 2019, 2020; Dao & McDonough, 2018; Lambert, Philp, & Nakamura, 2017; Phung, 2017; Qiu & Lo, 2017), previous research has shown that learner engagement differs when interaction occurs in SCMC as opposed to face-to-face (FTF; Baralt et al., 2016). Compared to FTF interaction, text-chat assisted learners to attend to and discuss more language features (see Payne & Whitney, 2002; Yilmaz & Yuksel, 2011). However, for some tasks, learners' discussion and awareness of language form (i.e., cognitive engagement) were not as high in text chat as in FTF interaction (Baralt, 2013, 2014; Gurzynski–Weiss & Baralt, 2014, 2015). Text chat was also reported to help reduce learners' anxiety, an aspect of emotional engagement, during interaction (Abrams, 2003; Satar & Özdener, 2008). Despite reporting informative findings, this body of research has largely examined text chat. Little research has investigated whether SCMC interaction mode (i.e., text vs. video chat), together with learners' familiarity with partners, would have different impacts on learner engagement, and whether learners' level of engagement is linked to subsequent text quality. Against this background, the current study investigated the impact of SCMC mode (text vs. video chat) and learners' familiarity with partners on learner engagement, as well as the link between learner engagement and subsequent joint-written-text quality. To capture diverse aspects of learner engagement, we employed a multimethod approach (e.g., interview, questionnaire, and discourse analysis of interactional data), which also addresses the issue of the single-method approach often used to measure learner engagement in previous engagement research (cf. Dörnyei & Kormos, 2000; Storch, 2008). In addition, we extended previous research that has largely investigated the impact of SCMC modes on learner engagement (e.g., Baralt et al., 2016) by examining the link between learner engagement and subsequent language production. Findings from the study will therefore contribute to the general understanding of the characteristics of video and text chat, their impact on learner engagement, and the association between learner engagement and language production (i.e., text quality).

CONCEPTUALIZING LEARNER ENGAGEMENT

Early L2 research conceptualized learner engagement as featuring a single-dimensional characteristic, which was operationalized as either amount of language production (i.e., words or turns; Dörnyei & Kormos, 2000), deliberation about language (Storch, 2008), metatalk about language features (Toth, Wagner, & Moranski, 2013), or learners' investment and mental effort in their discourse and task completion (Bygate & Samuda, 2009). However, contemporary approaches to learner engagement have perceived it as a multidimensional construct. Two pioneering attempts in L2 research that conceptualized and acknowledged the multifacetedness of the construct of learner engagement include Svalberg's (2009, 2017, 2021) framework of engagement with language (EWL) and Philp & Duchesne's (2016) model of task engagement.

Specifically, focusing on the context of language use and learning, Svalberg (2009, 2017, 2021) defined EWL as "a cognitive, and/or affective, and/or social state and a process in which the learner is the agent and the language is the object and may be the vehicle (means of communication)" (Svalberg, 2009, p. 244). EWL features three interconnected states or processes: cognitive (e.g., focused attention, alertness, and mental effort), social (e.g., interactiveness, support or scaffolding, and reactiveness or initiation of interaction), and affective (e.g., willingness to engage, purposefulness, and autonomy). Notably, EWL is situated in relation to language awareness, in which language awareness is perceived both as an outcome and a resource feeding into the process of engaging with language. Svalberg's conceptualization of EWL is the first essential step in recognizing the multidimensional nature of the 'learner engagement' construct, showing an advancement departing from the previous single-dimensional view of the construct.

Although also acknowledging the multidimensional characteristic of learner engagement, Philp & Duchesne (2016) drew on the educational psychology perspective of student engagement and described task engagement as "a state of learners' heightened attention and involvement" in a

task (p. 51), featuring four dimensions: behavioral, cognitive, social, and affective. Cognitive engagement refers to learners' mental effort such as sustained attention (Helme & Clarke, 2001), alertness and focused attention (Svalberg, 2009), and discussion of language form (Storch, 2008; Toth et al., 2013). Social engagement concerns learners' affiliation (Philp & Duchesne, 2008), interactiveness (Baralt et al., 2016), and mutuality and reciprocity (Storch, 2002). Emotional engagement reflects the affective aspects of interaction, manifesting learners' feelings and attitudes toward interaction, including both positive (e.g., enthusiasm, interest, enjoyment, willingness to communicate, feelings of connection) and negative (e.g., anxiety, frustration, boredom). Finally, behavioral engagement indicates learners' task focus, that is, on- or off-task participation.

It should be noted that while Svalberg (2009, 2017, 2021) related EWL to the state and/or process of building up language awareness—which in turn feeds back into the process of engaging with language—Philp & Duchesne (2016) focused on learner engagement at the task level (i.e., engagement in task-based interaction). Despite this difference, both frameworks indicate a degree of similarity in describing subcomponents (i.e., cognitive, social, and emotional engagement), therefore showing overlaps in the operationalization of each subcomponent. More importantly, compared to the previous conceptualization of engagement as a single-dimensional construct, both Svalberg's and Philp and Duchesne's models appear to be relatively comprehensive and show a step forward in acknowledging the multifacetedness of the construct of 'L2 learner engagement' and the interconnectedness of its subcomponents. As a result, L2 studies informed by these multidimensional frameworks of engagement have been increasingly conducted, documenting the effects of a variety of contextual, social, and task factors on learners' engagement in interaction (see Baralt et al., 2016; Carver, Jung, & Gurzynski–Weiss, 2021; Dao, 2019; Dao & McDonough, 2018; Lambert & Zhang, 2019; Lambert et al., 2017; Phung, 2017; Phung, Nakamura, & Reinders, 2021; Qiu & Lo, 2017; Sulis & Philp, 2021; Svalberg & Askham, 2020). While some early studies predominantly used either qualitative or quantitative measures to gauge learner engagement and relied largely on interactional data to examine learner engagement, recent studies adopted mixed methods to more comprehensively capture learner engagement. Following this trend, the current study combined both quantitative and qualitative measures and extended to use self-reports in addition to interactional data to investigate learner engagement.

ENGAGEMENT IN FACE-TO-FACE AND SYNCHRONOUS COMPUTER-MEDIATED COMMUNICATION INTERACTION

Previous FTF interaction research has shown that the inherently multidimensional characteristic of learner engagement was affected by a variety of factors. These factors included task content (i.e., learner- vs. teacher-created content; Lambert et al., 2017), task goal (Dao, 2019), task choice (Phung et al., 2021), task repetition and content familiarity (Qiu & Lo, 2017), task complexity (i.e., simple vs. complex tasks; Baralt et al., 2016), interaction mode (Baralt et al., 2016; Carver et al., 2021), learners' preference of tasks (Phung, 2017), classroom environment factors (Sulis & Philp, 2021), and interlocutor proficiency (Dao & McDonough, 2018). The findings of these studies collectively show that manipulating different dimensions of task features and implementation conditions could enhance the extent to which learners are engaged cognitively, socially, and emotionally in FTF task-based interaction.

Relevant to the focus of the current study on SCMC mode is Baralt et al.'s (2016) study, one among very few recent engagement studies that particularly compared the impact of interaction mode (text chat vs. FTF interaction) on cognitive, social, and affective dimensions of learner engagement. Based on different sources of data (i.e., chat logs, interviews, and transcripts), they found that the interaction mode affected all aspects of learner engagement, with learners in FTF mode showing greater attention to form and reflection (i.e., cognitive engagement) and greater support during interaction (i.e., social engagement), and reporting more positive feelings (i.e., emotional engagement) than those in text chat. Their findings were later supported by Carver et al. (2021), which also reported learners' higher level of cognitive and affective engagement in FTF interaction as compared to SCMC. These two studies, to the best of our knowledge, are the first ones that investigated learner engagement with regard to SCMC mode.

Despite providing evidence on the impact of interaction mode on learner engagement, these studies remained relatively descriptive (Baralt et al., 2016) and examined text chat only with reference to FTF interaction (Baralt et al., 2016; Carver et al., 2021). This, thus provides little information about the possible impact of different

modes of SCMC on learners' interaction. Given that SCMC includes both text- and video-based modes, it is necessary to scrutinize how different types of SCMC affect learner engagement. Characteristically, text chat uses texting as a form of communication and does not involve visual aids (i.e., webcam or camera). Meanwhile, video chat involves speaking as a means of exchanging ideas and information and uses a camera or webcam to project images of learners' faces. The differences in these characteristics of text and video chat have been argued as factors affecting learners' interaction and/or engagement. It is thus significant to investigate whether these characteristics of SCMC modes lead to differences in learners' interactional behaviors.

In addition, previous research reported that text and video chat had differential impacts on learners' interaction, with the video chat creating significantly more 'saving face' interaction moments among unfamiliar dyads than text chat. These segments of face-saving interaction appear to detract learners from negotiating language issues, thereby diminishing opportunities for language learning (van der Zwaard & Bannink, 2014; see also van der Zwaard & Bannink, 2019). However, it is little known whether this negative impact of SCMC mode has consequences for learners' engagement and whether learners' unfamiliarity with each other is a factor leading to these negative impacts, given that the dyads of learners in van der Zwaard & Bannink (2014) were native versus nonnative speakers who had little familiarity with each other. Future research is therefore needed to address these issues.

LEARNER FAMILIARITY IN INTERACTION

In the context of L2 task-based interaction, learners' familiarity with each other has been reported to affect the quality and quantity of learners' interaction (Gass & Varonis, 1984). For instance, learners were more likely to negotiate for meaning and help each other during the interaction when they were grouped with familiar partners as opposed to unfamiliar peers (Plough & Gass, 1993). The learners' familiarity also helps enhance the use of language and subsequent language production accuracy (O'Sullivan, 2002). In addition, learners tended to engage more in language discussion and achieve higher task scores in familiar dyads as compared to unfamiliar dyads (Pastushenkov et al., 2020).

In contrast, when interacting with unfamiliar partners, learners tend to engage less in negotiation for meaning (Gass & Varonis, 1985) and show a low comfort level (Cao & Philp, 2006). The unfamiliarity with partners during interaction could also result in negative impacts on learning such as greater use of the first language, higher transfer of errors (Cholewka, 1997), or lower rate of retention of language features (Poteau, 2011). Some recent research, however, suggests that the fact of knowing little about the partners, especially for those learners from different cultural and linguistic backgrounds, might at times intrigue the learners, thereby promoting more interaction among them (see Aubrey, King, & Almukhaild, 2020; Sampson, 2020; Sampson & Yoshida, 2021; Yoshida, 2020). Overall, these studies indicate that interlocutor (un)familiarity influenced how learners interact or engage in FTF interaction. However, whether this impact (either positive or negative) could become more intense in technology-enhanced interaction and linked to subsequent L2 production (e.g., written-text quality) is little known. The next section reviews research on the quality of written texts and the writing process during SCMC and FTF interactions.

TEXT QUALITY IN SYNCHRONOUS COMPUTER-MEDIATED COMMUNICATION AND FACE-TO-FACE INTERACTIONS

Research on collaborative writing (CW) both in SCMC and FTF interaction has identified different characteristics of CW (e.g., pooling knowledge about language from different participants, and creating interaction opportunities for meaning making and knowledge building) as crucial factors determining subsequent text quality (Elola & Oskoz, 2010; Fernández–Dobao, 2012; Li & Zhu, 2017; Storch, 2005; see also Li & Storch, 2017). Early CW research focusing on describing the FTF writing process (e.g., what the learners do, attend to, and discuss) during CW indicated several benefits of CW in terms of promoting greater attention to language form and better text quality (Fernández–Dobao, 2012; Wigglesworth & Storch, 2009). They also reported learners' positive perceptions toward CW (see Fernández–Dobao & Blum, 2013; Neumann & McDonough, 2015; Shehadeh, 2011).

Recent CW research has extended to investigate the impact of SCMC interaction mode (e.g., wikis and Google docs) on learners' perceptions and writing processes during SCMC collaborative writing. Findings reported that different interactional patterns during SCMC collaborative writing were affected by not only the SCMC mode but also individual and contextual factors (e.g., learners' goals, social relationships, emotions; Abrams,

2019; Bradley, Lindström, & Rystedt, 2010; Elola & Oskoz, 2010; Kost, 2011; Li & Zhu, 2017; Rouhshad & Storch, 2016; Strobl, 2014; Tan, Wigglesworth, & Storch, 2010). A few studies reported the positive impact of learners' collaborative interactional behaviors during SCMC collaborative writing on different aspects of the co-constructed texts such as rhetorical structure, coherence, and accuracy (Li & Zhu, 2017). These studies, however, have not examined the potential impact of learner engagement during SCMC interaction on subsequent language production (i.e., text quality). Previous research reported that learners' cognitive engagement (i.e., language-related episodes [LREs]) in FTF interaction had positive impacts on learners' L2 learning and consolidation (Storch, 2008). However, it is little known whether this is the case for SCMC. In addition, during the writing process, learners may cooperate to write a text (i.e., dividing the work into individual writing parts and combining them later) instead of collaboratively co-constructing it (see Storch, 2013). This warrants further research to devise specific measures to document this phenomenon and explore its impact on the quality of interaction and text products.

THE CURRENT STUDY

To investigate the characteristics of text chat potentially affected by contextual and social factors (Ortega, 1997, 2009; Ziegler, 2016) and to extend this line of research to include video chat, the current study focused on the impact of SCMC mode (text vs. video chat) and interlocutor familiarity on learners' performance (i.e., learner engagement; Research Question 1). Given that previous CW research has not established the link between learner engagement and L2 subsequent production—and largely focused on cognitive aspects of learner engagement (i.e., discussion of form during the writing process)—the current study extends this research by examining the relationship between learner engagement and subsequent language production (i.e., text quality; Research Question 2).

RESEARCH QUESTIONS

RQ1. To what extent do SCMC mode and learners' familiarity with peers affect their engagement?

RQ2. To what extent is learner engagement associated with text quality in SCMC interaction?

METHOD

Participants

Participants were 98 Vietnamese learners of English (59 females and 39 males) recruited from four different EFL classes at two private language centers in Vietnam. Their mean age was 16.93 ($SD = 2.65$), and their average time learning English was 8.65 years ($SD = 2.62$). Their English proficiency was assessed by the Test of English for International Communication (TOEIC), with a mean score of 428.84 ($SD = 144.52$), equivalent to the A2 level based on the Common European Framework of Reference for Languages (CEFR). Participants were divided into two groups: unfamiliar (24 dyads) and familiar (25 dyads; see the 'Design' section). The proficiency levels between the familiar ($M = 423.6$; $SD = 150.18$) and unfamiliar groups ($M = 435.83$; $SD = 140.85$) were not significantly different, $t(96) = .416$, $p = .68$, $d = .08$.

Design

The study was to explore the effects of SCMC mode (a within-group design) and learners' familiarity with partners (a between-groups design) on learner engagement (RQ1) and the relationship between learner engagement and subsequent text quality (RQ2). We used multivariate analyses to address RQ1, due to the study's factorial mixed design, and regressional analyses to address RQ2, given that learner engagement was proposed to have causal effects on L2 production and learning (Hiver, Al–Hoorie, & Mercer, 2021; Philp & Duchesne, 2016; see also Reschly & Christenson, 2012). The study's variables (i.e., SCMC mode, familiarity with partners, learner engagement, and text quality) were operationalized as follows.

SCMC mode had two levels: text chat and video chat. Familiarity with partner is a broad construct that involves multiple aspects (see Cao & Philp, 2006; Cholewka, 1997). Following Pastushenkov et al. (2020), familiarity was operationalized as whether the learners in each dyad (a) were friends and classmates, (b) had experiences interacting with each other in an English class, or (c) had met each other prior to their interaction. To assess the learners' familiarity, a background questionnaire was used (see the description in the next section).

Due to the focus on learner engagement at the level of task, we followed Philp & Duchesne's (2016) framework of task engagement. However, we operationalized learner engagement as manifesting only three dimensions (cognitive, social,

and emotional), given the argument that learners' behavioral engagement is viewed as the reflection of cognitive, emotional, and social engagement (Dao, 2019, 2020; Dao & McDonough, 2018; see also Oga–Baldwin & Nakata, 2017). That is, when learners are socially, cognitively, and emotionally engaged in the task-based interaction, they are likely to demonstrate these through their interactional behaviors, such as attention to language form and discussion of task content, questions, justifications, and explanation (behaviors of cognitive engagement); response to partner's talk, mutual help, scaffolding (behaviors of social engagement), laughing due to having fun, and excitement (behaviors of emotional engagement). Also, because of the similarities between Svalberg (2009, 2017) and Philp & Duchesne (2016) in their descriptions of each specific subcomponent, measures of learner engagement used in the current study reflected the overlaps between the two frameworks. In addition, following the description of each subcomponent of learner engagement in Philp & Duchesne (2016), we included additional measures to capture more fully diverse aspects of engagement. Specifically, we defined and operationalized each aspect of learner engagement as follows.

Cognitive engagement refers to learners' attention to language features (Baralt et al., 2016; Helme & Clarke, 2001; Toth et al., 2013) and task-related discussion (Dao & McDonough, 2018). Quantitative measures of cognitive engagement include (a) LREs, which target language features; (b) instances of semantically engaged talk, which tap into the quality of task-related discussion and/or task contribution (Lambert et al., 2017; Storch, 2013); and (c) self-reported attention.

Social engagement was operationalized as learners' responsiveness in interaction based on the concept of mutuality and reciprocity (Storch, 2002). Measures of social engagement included (a) talk segments in which learners encourage each other to talk, reflect, and comment on their partner's ideas, repeat each other's utterances, complete each other's utterances, use backchanneling for agreement or confirmation; (b) self-reported collaboration; and (c) self-reported mutual help. The measures of social engagement focusing on learners' responsiveness in interaction were to assess the nature of CW. Specifically, they were to examine whether the learners show cohesiveness in responding to each other in interaction (i.e., cohesive talk, see Storch, 2013) during the writing process. Finally, emotional engagement refers to learners' affective involvement in a task (Philp & Duchesne, 2016). Recent empirical studies show that learners' emotional engagement in tasks manifests in two key dimensions: positive feelings (e.g., enjoyment and interest in the topic or the task) and negative feelings (e.g., anxiety and/or feelings of disconnectedness with peers; Dao & McDonough, 2018; Early & Marshall, 2008; Nakamura, Phung, & Reinders, 2021; Phung et al., 2021; Sampson, 2020; Skinner, Kindermann, & Furrer, 2009; Yoshida, 2020; see also Mercer, 2019). Thus, emotional engagement was operationalized as both positive and negative emotions that were aroused during the interaction; these were assessed using self-reports.

Discourse analyses following Wigglesworth & Storch (2009) were used to assess three dimensions of text quality: complexity, accuracy, and fluency (CAF). Although there were some variations in CAF measures across CW studies, they were adopted in this study because they have been widely used to assess text quality as compared with other measures (see Housen, Kuiken, & Vedder, 2012). In addition, we followed Wigglesworth and Storch's CAF framework because it was employed to assess collaborative writing, which was also the focus of the current study. CAF measures based on Wigglesworth and Storch were operationalized to include (a) fluency as text length assessed by an average number of T-units, clauses, and words per text; (b) accuracy as proportions of error-free T-units to all T-units and proportions of error-free clauses to all clauses; and (c) complexity as proportion of clauses to T-units and proportion of dependent clauses to total clauses.

Task, Questionnaires, and Interview

Two similar versions of a picture-sequencing task that asked learners to describe and sequence 10 pictures were used. Each learner was provided with five different pictures and asked to collaboratively write a story based on the pictures. Each version of the task contained 10 different pictures depicting a series of family vacation activities. Task pictures were controlled for the potential impact of the topic and content. Both versions of the task pictures featured similar topics (i.e., holiday incidents) and depicted similar activities in a sequence (see Appendix A).

A background questionnaire was used to collect participants' biodata and assign them into familiar or unfamiliar groups. The first section of the questionnaire included items gathering information about the learners' age, gender, English learning experience, and English proficiency. The second section included questions to assess

learners' familiarity with partners, such as "Did you ever meet each other before? Are you close friends/classmates in any English classes? Did you have experience of interacting with each other in pairs/groups in English classes? If yes, how often?" Answers to these questions were used to assign learners into familiar or unfamiliar groups. Familiar dyads included learners who were friends or classmates and had previously worked together. Meanwhile, unfamiliar dyads included learners who had never met each other prior to their interaction.

A posttask 10-point Likert scale questionnaire was created to measure cognitive, social, and emotional engagement (see Appendix B). The development of items in the questionnaire was informed by previous research (e.g., Aubrey, 2017; Dao & McDonough, 2018; Lambert et al., 2017; Phung, 2017) and discussion on the concept of engagement (e.g., Philp & Duchesne, 2016; Svalberg, 2009, 2017, 2021). The questionnaire consisted of three sections: emotional, social, and cognitive engagement, with each section including 10 statements to which the learners indicate their response using a 10-point Likert scale (1 = *strongly disagree*; 10 = *strongly agree*). With regard to emotional engagement, the statements concerned learners' enjoyment, interest, excitement, contentment, satisfaction, boredom, tedium, discouragement, frustration, and annoyance. These emotions have been documented to be often aroused during task interaction (Aubrey, 2017; Dao, 2019; Dao & McDonough, 2018; Phung, 2017; Sampson & Yoshida, 2021; Yoshida, 2020). For the validity of the questionnaire, exploratory factor analysis was performed to examine dimensions of emotional engagement as reflected in factor loadings indicating that participants had high agreements. During the data screening, a correlation matrix with all question statements showed that they were correlated with each other. Multicollinearity issues were not observed, with no correlation coefficients being higher than .90. The exploratory analysis yielded a Kaiser–Meyer–Olkin (KMO) static value of .79, indicating that there were relatively compact patterns of correlations and the identified factors were distinct and reliable. Bartlett's test of sphericity results were significant ($p < .01$), suggesting that the exploratory factor analysis was appropriate. Based on the Kaiser criterion for communalities after extraction with eigenvalues greater than 1, two factors were extracted, with the total variance explained by the factors being 62.93%. The two factors concerned negative and positive emotions (see Appendix C for factor loadings).

Regarding social engagement, the questionnaire statements targeted learners' collaboration, involvement, responsiveness to each other's opinions, language help, and responses to help requests. Exploratory factor analysis revealed a KMO static value of .72 and a significant Bartlett's test of sphericity ($p < .01$). With the Kaiser criterion for communalities after extraction in which eigenvalues were set to be greater than 1, two factors were extracted: perceived collaboration and mutual help (see Appendix C for factor loadings). As for cognitive engagement, the statements focused on learners' self-reported attention to their own and partner's language issues, feedback on language issues, attention to each other's opinions and mental effort or thought about ideas for task completion, elaboration of ideas, justification of opinions, and provision of ideas. Exploratory factor analysis was performed, yielding a KMO static value of .72 and a significant Bartlett's test of sphericity ($p < .01$). Two factors were extracted from the analysis: attention and thinking about language issues and task content (see Appendix C for factor loadings).

To examine the reliability of the engagement questionnaire, internal consistency using Cronbach's alpha for each type of self-reported engagement was examined. The results showed high internal consistency: positive emotions ($\alpha = .86$), negative emotions ($\alpha = .70$), perceived collaboration ($\alpha = .85$), mutual help ($\alpha = .85$), attention and thinking about language issues ($\alpha = .70$), and task content ($\alpha = .76$).

The posttask semistructured individual interview consisting of 10 open-ended questions was meant to examine learners' perceptions about SCMC mode, learner engagement, and familiarity with partners. The first three questions asked learners to compare the two SCMC modes with regard to preference of text or video SCMC modality and their impact on interaction. The next three questions explored learners' perceptions about dimensions of learner engagement. The final four questions scrutinized learners' perceptions of interlocutor partners, focusing on their relationship in the interactions, their comfort level, advantages and difficulties in interacting with partners, preference of interlocutor partners in a SCMC mode, and any potential mediating factors that affected their engagement. All questionnaire and interview items were translated into the participants' first language (i.e., Vietnamese). Back translation between English and Vietnamese was also performed to ensure that the English and Vietnamese versions were equivalent.

TABLE 1
Data Collection Procedure

Session	Task
Session 1	Project introduction, consent form, and biodata questionnaire (60 minutes)
	Training for using SCMC tools (30 minutes)
Session 2	Text chat: Picture-sequencing task version 1 (30 minutes)
	Posttask engagement questionnaire (15 minutes)
	15-minute break
	Video chat: Picture-sequencing task version 2 (30 minutes)
	Posttask engagement questionnaire (15 minutes)
	Individual interview (20 minutes)

Note. SCMC = synchronous computer-mediated communication. SCMC mode (text or video chat) and task pictures (version 1 or 2) were counterbalanced.

Procedure

Data was collected in a lab-based setting at a university's language center during two separate sessions scheduled according to the participants' availability. The procedure for data collection is illustrated in Table 1.

In Session 1, the research project was introduced to the participants and clarification questions were addressed. The participants were given a consent form to fill in and a background questionnaire to complete. They were also given time to get familiar with text or video Facebook Messenger and a Google docs form, and practice using two windows (one for Facebook Messenger and another for Google docs) during task performance. In Session 2, they were paired and assigned to the familiar or unfamiliar conditions using the pairing criteria described in the previous section. Each learner received task instructions and was seated in a separate lab room so that they were not able to physically see and hear their partner. Thus, they could carry out the tasks only through text or video Facebook Messenger using an account created for them in an assigned computer. Each dyad performed one version of the picture-sequencing task in a text chat and the other version in a video chat. Sequences of SCMC mode were counterbalanced to control for the practice effect, with half of the dyads interacting via the text chat first and then video chat, and another half doing the opposite. The sequence of task version (versions 1 and 2) was also counterbalanced across two SCMC conditions. Each interaction was regulated strictly to last for 30 minutes and conducted in English. There was a 15-minute break between the two tasks to control for possible fatigue. The participants were not allowed to use this break time to do anything related to the task but instead just rested. They were asked to complete the engagement questionnaire twice (once after each task) and participated in a 20-minute individual interview.

Coding

Text exchanges in the text chat were copied and pasted into a Word file and the audio recordings of the video chat were transcribed verbatim and verified. Text-chat exchanges and transcripts were then coded for evidence of engagement. Following previous research (Helme & Clarke, 2001; Lambert et al., 2017; Toth et al., 2013), two coding measures of cognitive engagement included (a) LREs operationalized as attention to formal aspects of language (Swain & Lapkin, 1998), and (b) instances of semantically engaged talk in which learners discuss task content. LREs identified in both text and video chat included self- or other-correction, metalinguistic comments, explicit correction, languaging, scaffolding (i.e., discussing language features by pooling each other's knowledge), and responding to each other's request of language help. Given that in text chat, learners' focus on language also took the form of text changes (see Bradley et al., 2010; Li & Zhu, 2017), such changes or amendments were additionally counted as instances of learners' attention to form or LREs.

Following the concepts of idea unit as a segment of information or idea or comment about the topic under discussion (Dao & McDonough, 2018; Ellis & Barkhuizen, 2005; McCarthy, 1991) and elaborative talk on the semantic content of task contribution (Lambert et al., 2017), instances of semantically engaged talk (also see cohesive and elaborated talk in Storch, 2013) were operationalized as a talk segment in which learners (a) reason to support their argument, (b) elaborate and expand on ideas about task content, (c)

generate new additional ideas to contribute jointly to all aspects of the text-construction process (i.e., idea units), (d) decide on how to best express ideas, (e) decide how to carry out the task, and (f) provide reasons for including or excluding ideas in the written text. Examples of each type of semantically engaged talk are demonstrated in Examples 1–6 in Appendix D.

Instances of responsiveness as a measure of social engagement were identified in the text exchanges and transcripts. Responsiveness refers to a situation in which learners respond to partner's opinion by (a) encouraging each other to talk, (b) repeating each other's utterance, (c) completing each other's utterance, (d) providing positive backchannels for agreement or confirmation, and (e) reflecting on each other's utterances or contributions. Responsiveness manifests learners' mutuality, reciprocity (Storch, 2002), and social affiliation (Philp & Duchesne, 2008). It should be noted that instances of responsiveness differ from instances of semantically engaged talk described previously because they include two parties (learners) and focus on how learners respond to each other's task contribution in order to reflect the reciprocity and mutuality in the interaction. Meanwhile, instances of semantically engaged talk focus on an individual learner's cognitive processing (e.g., elaboration, expansion, and reasoning) about the task content or the meaning. Different types of responsiveness are illustrated in Examples 7–11 in Appendix E.

Text quality, following Wigglesworth & Storch (2009), was assessed in terms of CAF. Specifically, fluency was operationalized as text length assessed by counting, per text, the number of (a) words, (b) T-units (i.e., an independent clause plus all of its attached dependent clauses), and (c) clauses—including independent clauses, defined as a grammatical structure that consists of a subject and a verb and can stand on its own, and dependent clauses that contain a finite verb or adverbial, relative, or noun clauses and cannot stand on its own. Complexity was operationalized as proportion of clauses to T-units, and proportion of dependent clauses to all clauses. Meanwhile, accuracy was operationalized as the proportion of error-free T-units and clauses of a text.

A second independent coder coded 20% of the data. Pearson correlation coefficients (r) for interrater reliability between two coders was calculated for the frequencies of LREs ($r = .93$), instances of semantically engaged talk ($r = .82$), instances of responsiveness ($r = .85$), number of clauses ($r = .95$), dependent clauses ($r = .94$), T-units ($r = .96$), error-free clauses ($r = .87$), and error-free T-units ($r = .88$).

Analysis

To examine the impact of SCMC mode and familiarity with partners on learner engagement (RQ1), the normalized scores (proportions) of all engagement types were compared across the experimental conditions using a two-way MANOVA test, followed by univariate tests to identify significant effects across conditions. To investigate the relationship between learner engagement and text quality (RQ2), correlations were first performed between scores of all engagement types (predictors) and all scores of text quality (outcome variables) to determine the linear relationship between predictors and outcome variables. Given that there were no predetermined hypotheses, the 'enter' method was used for inputting the predictors into the multiple regressions to examine the association between learner engagement and text quality.

RESULTS

To answer the first RQ, which asks whether SCMC mode and interlocutor familiarity affect their engagement, normalized (proportion) and self-reported scores for all types of engagement were calculated and are presented in Table 2.

MANOVA (Pillai's trace) results yielded significant main effects with large effect sizes for both SCMC mode, $V = .51$, $F(9,88) = 9.96$, $p < .01$, $\eta_p^2 = .51$; and familiarity with partner, $V = .22$, $F(9,88) = 2.77$, $p = .007$, $\eta_p^2 = .22$. There were no significant interaction effects between the familiarity with partner and the interaction mode on learner engagement, $V = .05$, $F(9,88) = .52$, $p = .86$, $\eta_p^2 = .05$. Follow-up univariate tests showed that there were statistically significant effects of SCMC mode on six measures of learner engagement: semantically engaged talk, LREs, attention and thinking about language, responsiveness instances, perceived collaboration, and negative emotions (see Table 3). More specifically, as shown in the 'Direction' column in Table 3, the video-chat group's scores of five measures of engagement—that is, semantically engaged talk, LREs, attention and thinking about language, responsiveness instances, and perceived collaboration—were significantly higher than those of the text-chat group. Meanwhile, the scores for negative emotions in the video-chat group were significantly lower than those of the text-chat group.

TABLE 2
Descriptive Statistics for Scores by Synchronous Computer-Mediated Communication Mode and Familiarity With Partners

		Video chat				Text chat			
		Raw		By words		Raw		By words	
Measure	Group	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Semantically engaged talk	Unfamiliar	17.44	8.17	.061	.023	14.34	5.17	.048	.017
	Familiar	13.73	7.79	.063	.018	13.69	5.26	.049	.023
Language-related episodes	Unfamiliar	5.48	4.15	.017	.011	1.67	1.33	.009	.009
	Familiar	8.78	6.30	.022	.012	2.86	1.93	.014	.011
Attention and thinking about language	Unfamiliar	8.60	1.35	–	–	8.34	1.29	–	–
	Familiar	8.61	1.06	–	–	8.35	1.35	–	–
Attention and thinking about task content	Unfamiliar	8.67	1.11	–	–	8.49	1.24	–	–
	Familiar	8.22	1.34	–	–	8.11	1.37	–	–
Responsiveness instances	Unfamiliar	31.40	15.86	.089	.040	16.86	7.01	.073	.026
	Familiar	28.85	16.01	.105	.056	18.48	9.11	.083	.037
Perceived collaboration	Unfamiliar	9.23	.88	–	–	9.16	.85	–	–
	Familiar	9.52	.70	–	–	9.17	.86	–	–
Perceived mutual help	Unfamiliar	8.72	1.58	–	–	8.41	1.68	–	–
	Familiar	8.76	1.44	–	–	8.55	1.78	–	–
Positive emotions	Unfamiliar	8.91	1.09	–	–	8.68	1.15	–	–
	Familiar	8.93	1.02	–	–	8.70	1.15	–	–
Negative emotions	Unfamiliar	1.90	1.46	–	–	1.93	1.16	–	–
	Familiar	1.58	.99	–	–	1.61	.91	–	–

Note. *M* = mean; *SD* = standard deviation.

TABLE 3
Follow-Up Univariate Tests Results: Synchronous Computer-Mediated Communication Mode and Learner Engagement

	F	*p*	η^2	Observed power	Direction
Semantically engaged talk	25.15	.001	.21	.99	VC > TC*
LREs	33.64	.001	.26	1.00	VC > TC*
Attention and thinking about language	5.04	.027	.05	.60	VC > TC*
Attention and thinking about task content	1.42	.237	.02	.22	VC > TC
Responsiveness instances	15.56	.001	.14	.97	VC > TC*
Perceived collaboration	7.08	.009	.07	.75	VC > TC*
Mutual help	3.35	.070	.03	.44	VC > TC
Positive emotions	.07	.796	.01	.06	VC > TC
Negative emotions	4.70	.033	.05	.57	VC < TC*

Note. LREs = language-related episodes; VC = video chat; TC = text chat. The direction of score asymmetries across modes is indicated by > and <.
*$p < .05$.

Follow-up univariate analyses to examine the effect of familiarity with partners on learner engagement were conducted, and the results showed significant differences on six measures of learner engagement: semantically engaged talk, LREs, attention and thinking about language, responsiveness instances, perceived collaboration, and positive emotions (see Table 4). More specifically, as shown in the 'Direction' column in Table 4, the familiar group's scores for all six of these measures of engagement were significantly higher than those of the unfamiliar group.

When asked about the impact of SCMC mode on their engagement, 97.95% of the learners

TABLE 4
Follow-Up Univariate Tests Results: Familiarity With Partners and Learning Engagement

	F	p	η^2	Observed power	Direction
Semantically engaged talk	25.46	.001	.21	.99	F > UF*
Language-related episodes	34.02	.001	.26	1.00	F > UF*
Attention and thinking about language	3.52	.026	.05	.61	F > UF*
Attention and thinking about task content	1.417	.237	.01	.22	F < UF
Responsiveness instances	15.52	.001	.14	.97	F > UF*
Perceived collaboration	6.72	.011	.07	.73	F > UF*
Mutual help	3.43	.067	.03	.45	F > UF
Positive emotions	4.77	.031	.05	.58	F > UF*
Negative emotions	.07	.790	.01	.06	F < UF

Note. F = familiar; UF = unfamiliar. The direction of score asymmetries across groups is indicated by > and <.
*$p < .05$.

EXCERPT 1

I think talking via video messenger [video chat] is easier and more effective for me because I could express a lot of my opinions*content-related cognitive engagement and discuss more ideas directly with my partner about the task pictures.*content-related cognitive engagement Also, when I talked directly to my partner, I could express easily my emotions like my interest*positive emotional engagement and my thinking.*content-related cognitive engagement When we texted, it was difficult because my partner could not understand my message fully and it caused misunderstandings and frustration at times.*negative emotional engagement Another advantage of video chat was that if I could not express myself easily, I just hinted and asked for help and my partner could help me.*social engagement (mutual help) For text chat, it was difficult to do this, so our discussion was very limited.*content-related cognitive engagement We had problems with the language, but we did not have time to discuss*language-related cognitive engagement because the conversation was slow. So, our result [the text] was not as good as in the video chat.

reported that video chat offered them a more effective platform for communication as opposed to text chat, and thus facilitated their engagement in the interaction. Excerpt 1 from one learner's interview responses explains the benefits of video chat over text chat in terms of her engagement (different dimensions of engagement expressed by the learner are noted in the margins).

In Excerpt 1, the learner points out characteristics of the text chat that decreased her engagement as well as features of the video chat that enhanced her engagement. Factors such as not being able to see the partner and the slowness of the text exchanges are cited as main reasons for reducing their discussion of task content and language issues (i.e., cognitive engagement), arousing negative emotions such as frustration (i.e., emotional engagement), and limiting chances of asking for help during the interaction (i.e., social engagement). In contrast, the video chat allowed learners to see each other, and they talked instead of texting—which was thus more likely to facilitate learner engagement.

With regard to the impact of familiarity with partners on learner engagement, 95.91% of the participants reported their preference toward working with a familiar partner as opposed to an unfamiliar partner. Their main reasons for the positive impacts of familiarity with partner on their engagement included (a) comfort in talking, (b) ease at understanding each other due to previous experience, (c) less concern about making friends upset when expressing disagreement, and (d) frequent provision of mutual support. These reasons are reflected in one learner's interview response in Excerpt 2.

EXCERPT 2

Working with a friend was a lot better than a new unfamiliar partner. Since we had previous experiences of interacting with each other in and outside classes, it was easy to understand what the partner said. After he just said one or two words, I already understood his message before he even finished his sentence. Also, since we are friends and knew that the activity was just for learning [English], we were not worried about making each other upset when getting into a debate. We felt comfortable discussing ideas and had fun as a result of the interaction. Besides, my English was not as good as my partner, but he never complained about it. Instead, he helped me a lot if I did not know anything such as vocabulary. However, for the unfamiliar partner, I needed a bit of time to get to know her. I was hesitant to express

myself and was very careful when interacting, which I did not need to worry about when working with a close friend. In general, I was pleased and preferred working with a familiar partner.

Excerpt 2 shows that interacting with a familiar partner brought about several emotional and social benefits to the learner (i.e., "felt comfortable," "had fun," "not worried about making each other upset"). Meanwhile, interacting with an unfamiliar partner made him "hesitant" and unsure about the unfamiliar partner.

To answer the second RQ, which asks about the relationship between learner engagement and text quality, we first conducted correlations between all scores of nine measures of engagement types (i.e., predictors) and each score of seven measures of text quality (i.e., an outcome variable). To examine which type of engagement predicts text quality, we then built seven regression models with each score of text quality measure as an outcome variable and scores of engagement types that were significantly correlated with the score of text quality as predictors. Tables 5–9 summarize the descriptive statistics and results of correlational and regression analyses.

Table 5 presents descriptive statistics for predictors and outcome variables of all regression models. As stated earlier, correlations were conducted to identify which predictors are significantly associated with the outcome variables (see Table 6).

In Table 6, three predictors (i.e., LREs, responsiveness instances, and perceived mutual help) were significantly correlated with the outcome variable (text quality) measured by words and clauses. Two predictors that had significant correlations with the T-unit outcome variable included LREs and perceived mutual help. In addition, two predictors (i.e., attention and thinking about language and task content) showed significant correlations with the error-free T-unit outcome variable. Meanwhile, four predictors (i.e., LREs, attention and thinking about language and task content, mutual help) were significantly correlated with error-free clause outcome variable. One predictor (i.e., semantically engaged talk) was significantly correlated with two outcome variables: percentages of clauses per T-units, and percentages of dependent clauses per all clauses.

Seven multiple and linear regressions were then performed on each score of all seven measures of text quality (i.e., the outcome variable), with predictors that had significant correlations with the outcome variable entered in the regression models. All predictors met the linearity assumption, and the collinearity diagnostics did not reveal multicollinearity problems or dependence between the predictors. The results of the regression analyses are summarized in Tables 7–9.

Three predictors (i.e., LRE, responsiveness instances, and perceived mutual help) were entered into a regression model (Model 1) to predict the outcome variable of text quality measured by words. The model was not statistically significant, $F(3,196) = .48$, $p = .69$, $R^2 = .007$, adjusted $R^2 = .008$. In Table 7, the results indicate that

TABLE 5
Descriptive Statistics for Predictors and Outcome Variables

Predictors and outcome variables	Measure	*M*	*SD*
Cognitive engagement	Semantically engaged talk	.06	.02
	Language-related episodes	.02	.01
	Attention and thinking about language	8.48	1.26
	Attention and thinking about task content	8.37	1.28
Social engagement	Responsiveness instances	.09	.04
	Perceived collaboration	9.27	.83
	Perceived mutual help	8.61	1.62
Emotional engagement	Self-reported positive emotions	8.80	1.10
	Self-reported negative emotions	1.75	1.50
Fluency	Words	199.42	80.32
	Clauses	22.82	8.54
	T-units	17.67	5.93
Accuracy	Error-free T-units per all T-units (%)	.62	.28
	Error-free clauses per all clauses (%)	.49	.24
Complexity	Clauses per T-units (%)	1.28	.15
	Dependent clauses per all clauses (%)	.22	.08

TABLE 6
Pearson Correlations Between Predictors and Outcome Variables

Predictor	Words		Clauses		T-units		Error-free T-units per all T-units (%)		Error-free clauses per all clauses (%)		Clauses per T-units (%)		Dependent clauses per all clauses (%)	
	r	*p*	*r*	*p*	*r*	*p*	*r*	*p*	*r*	*p*	*r*	*p*	*r*	*p*
Semantically engaged talk	.01	.93	.02	.75	.08	.22	.11	.12	.01	.85	.16	.02*	.19	.01**
Language-related episodes	.26	.01**	.19	.01**	.19	.01**	.10	.16	.15	.04*	.02	.78	.03	.64
Attention and thinking about language	.05	.47	.02	.73	.02	.82	.18	.01*	.14	.04*	.01	.92	.07	.35
Attention and thinking about task content	.02	.75	.01	.87	.01	.98	.20	.01**	.16	.02*	.03	.70	.03	.74
Responsiveness instances	.16	.02*	.14	.04*	.14	.05	.05	.45	.02	.74	.08	.28	.06	.39
Perceived collaboration	.03	.68	.02	.87	.02	.77	.01	.90	.04	.58	.04	.57	.12	.09
Perceived mutual help	.22	.01**	.20	.01**	.19	.01**	.12	.08	.15	.03*	.05	.52	.06	.40
Positive emotions	.03	.72	.01	.94	.03	.72	.11	.13	.11	.10	.07	.31	.02	.74
Negative emotions	.06	.39	.06	.35	.02	.75	.08	.23	.02	.76	.12	.09	.10	.15

* $p < .05$. ** $p < .01$.

despite significant correlations, LREs, responsiveness instances, and perceived mutual help did not predict the length of text measured by words. Similarly, three predictors (i.e., LRE, responsiveness instances, and perceived mutual help) were entered into a regression model (Model 2) to predict the outcome variable: text quality measured by clauses. The model was statistically significant, $F(3,196) = 5.18$, $p = .002$, and accounted for a small percentage (7.5%) of the variance in the length of text measured by clauses ($R^2 = .075$, adjusted $R^2 = .06$). Table 7 shows that LREs and perceived mutual help were significant predictors in Model 2. As indicated by the beta values, more LREs and mutual help were associated with more clauses of the text. While holding all other variables constant, a 1-point increase in LREs and mutual help led to an increase of 107.73 and .96 points in the score of clauses, respectively. Finally, two predictors (i.e., LREs and perceived mutual help) were entered into a regression model (Model 3) to predict the T-unit outcome variable. The model was significant, $F(2,196) = 439.37$, $p =$ .002, and accounted for 6.40% of the variance in the length of text measured by T-units ($R^2 = .064$, adjusted $R^2 = .054$). In Table 7, LREs and perceived mutual help were observed as significant predictors in Model 3. While holding all other variable constant, a 1-point increase in LREs and perceived mutual help score led to an increase of 87.34 and .64 points in T-units, respectively.

Two predictors (i.e., attention and thinking about language and task content) were entered in a regression model (Model 4) to predict the percentage of error-free T-units per all units. The model was not statistically significant, $F(2,196) =$ .39, $p = .07$; $R^2 = .22$, adjusted $R^2 = .05$.

Four predictors (i.e., LREs, attention and thinking about language and task content, and mutual help) were entered in a regression model (Model 5) to predict the percentage of error-free clauses per all clauses. The model was statistically significant, $F(2,196) = 3.16$, $p = .01$, and accounted for 6.2% of the variance in the text complexity measured by error-free T-units, ($R^2 = .062$, adjusted $R^2 = .042$). Table 8 shows that LREs were the significant predictor in regression Model 5. While holding all other variables constant, a 1-point increase in the score of LREs led to a 2.72 increase in points of error-free clauses.

Semantically engaged talk as a predictor was entered into two linear regression models (Models 6 and 7) with clauses per T-units as an outcome variable in the first model and dependent clauses per T-unit as an outcome variable in the second model. Model 6 was statistically

TABLE 7
Multiple Regression Models: Engagement and Fluency of Text

Outcome variable	Predictor	*B*	*SE*	*b*	*t*	*p*
Words (Model 1)	LREs	.07	.95	.01	.08	.94
	Responsiveness instances	.26	.26	.08	.99	.32
	Perceived mutual help	.01	.01	.04	.55	.58
Clauses (Model 2)	LREs	107.73	52.95	.15	2.04	.04
	Responsiveness instances	15.85	14.54	.08	1.09	.27
	Perceived mutual help	.96	.36	.18	2.60	.01
T-units (Model 3)	LREs	87.34	35.18	.17	2.47	.01
	Perceived mutual help	.64	.26	.13	2.48	.01

Note. LREs = language-related episodes.

TABLE 8
Multiple Regression Models: Engagement and Accuracy of Text

Outcome variables	Predictors	*B*	*SE*	*b*	*t*	*p*
Error-free T-units (Model 4)	Attention and thinking about language	.02	.02	.12	1.50	.12
	Attention and thinking about task content	.03	.01	.14	1.80	.07
Error-free clauses (Model 5)	Language-related episodes	2.72	1.21	.16	2.26	.02
	Attention and thinking about language	.01	.01	.09	1.20	.23
	Attention and thinking about task content	001	.01	.06	.75	.46

TABLE 9
Linear Regression Models: Engagement and Complexity of Text

Outcome variable	Predictor	*B*	*SE*	*b*	*t*	*p*
Clauses per T-units (Model 6)	Semantically engaged talk	1.07	.46	.16	2.29	.02
Dependent clauses per T-units (Model 7)	Semantically engaged talk	.74	.28	.18	2.62	.01

significant, $F(1,196) = 5.27$, $p = .02$, and accounted for 2.6% of the variance in the outcome variable ($R^2 = .026$, adjusted $R^2 = .021$). Model 7 was also significant, $F(1,196) = 6.86$, $p = .009$, and accounted for 3.4% of the variance in the outcome variable ($R^2 = .034$, adjusted $R^2 = .029$). Table 9 shows that semantically engaged talk was the predictor for both measures of text complexity: clauses per all T-units and dependent clauses per all clauses. While holding all other variables constant, a 1-point increase in the score of semantically engaged talk led to an increase of 1.07 and .74 points in the scores of percentages of clauses per T-units and percentages of dependent clauses per all clauses, respectively.

To summarize, the results of the regression analyses show that LREs and perceived mutual help were significant predictors of the fluency aspect of text quality measured by clauses and T-units. LREs were also observed to predict the accuracy of the texts measured by error-free clauses. Finally, semantically engaged talk was significantly predictive of the complexity of the texts measured by clauses per T-units and dependent clauses per T-units.

DISCUSSION

Impact of Synchronous Computer-Mediated Communication Mode and Familiarity With Partners

The study explored the impact of SCMC mode and familiarity with partners on learner engagement. The results revealed that scores of learners' cognitive engagement (e.g., semantically engaged talk, LREs, attention, and thinking about

language) and social engagement (e.g., responsiveness instances and perceived collaboration) in the video chats were significantly higher than those in the text chats. Learners also reported significantly lower scores of negative emotions in the video chat than the text chat. The positive impacts of video chats on learner engagement could be attributed to characteristics such as the visibility of the partners and the speed and mode of the conversation (e.g., talking rather than texting). These results suggest that video chat was more facilitative of learner engagement than text chat, and thus could be one of the beneficial SCMC modes for learning an L2.

Meanwhile, the negative impacts of text chat were ascribed to the slowness and to not being able to see the partners, which are perceived as disadvantageous features of text chat. These results corroborate previous research that has documented limitations of text chat and its negative impacts on learner engagement (Baralt et al., 2016). Thus, when compared to the video chat, the text chat seems to be disadvantageous and was thus more likely to decrease learner engagement. However, a group of learners (21.42%) expressed in their interview that text chat also had some positive impacts even though they preferred video chat. Excerpt 3 illustrates some benefits of text chat.

EXCERPT 3

> For me, text chat was still good in a way that I could have more time to think of ways to express myself. I could read and reread my partner's messages to understand them fully. And I did not have to respond immediately as in the video chat, so it was not really stressful if I needed more time to process the information and think of my own ideas.

In Excerpt 3, the learner cites lesser urgency of turn exchanges and delayed responses in texting as advantages of text chat in interaction. This suggests that, for some learners, text chat can still be a suitable mode for L2 task-based interaction (see Ortega, 2009; Ziegler, 2016).

With regard to the impact of familiarity with partners on learner engagement, the results show that familiar dyads had significantly higher scores on all types of engagement (e.g., semantically engaged talk, LREs, attention and thinking about language, responsiveness, perceived collaboration, and positive emotions) than the unfamiliar dyads. The results support previous research that has reported the benefits of familiarity with interaction partners for learning an L2, since familiarity positively affects learners' attention to form (Pastushenkov et al., 2020). The results also indicate the beneficial role of learners' familiarity with each other in facilitating productive online L2 interaction. Previous research reported that when nonnative speaker learners interacted with unfamiliar native speaker partners through video chat, they tended to avoid face-losing moments, which resulted in less interaction and negotiation of meaning as compared to when they interacted in text chat (van der Zwaard & Bannink, 2014). This face-losing issue, however, might have been reduced or diminished in learners' interactions in the current study when the learners were familiar with each other. As shown in Excerpt 2, the learner reported not worrying "about making each other upset" because they were friends. Evidently, as explained by the learner in Excerpt 2, interacting with a familiar partner might have created a beneficial interaction environment in which learners could find it easy to discuss and understand each other due to their previous experiences, feel comfortable talking, and provide and receive support during the interaction. These facilitative factors created by familiarity with partners might have enhanced learner engagement, especially in a computerized environment where physical presence is missing. It should be noted that some other previous research suggests that differences rather than familiarity among learners might elicit more positive emotions (Sampson, 2020; Yoshida, 2020) and are more likely to promote their engagement in FTF interaction (see Aubrey, 2017; Phung, 2017). However, as observed in the current study, it seems that familiarity among learners in SCMC is of importance for promoting engagement and generating productive online interaction.

Learner Engagement and Text Quality

The second focus of this study was to examine the causal relationship between learner engagement and text quality using regression analyses. The results overall revealed that higher levels of cognitive and social engagement measured by LREs and semantically engaged talk (cognitive engagement) and by mutual help (social engagement) resulted in better text quality in terms of CAF. These results support the argument that learner engagement is significant and conducive to learning in general (Fredricks, Reschly, & Christenson, 2019; Reschly & Christenson, 2012) and L2 awareness and/or L2 learning in particular (Hiver et al., 2021; Lambert & Zhang, 2019; Mercer, 2019; Mercer & Dörnyei, 2020; Philp & Duchesne, 2016; Svalberg, 2009, 2017).

More specifically, the results show that LREs and mutual help predicted the fluency of the text measured by clauses and T-units. These results indicate that the more learners discuss their language use and help each other during the interaction, the more likely they are to produce longer texts. Also, discussion of language form (i.e., LREs) predicted the accuracy of the written text as measured by error-free clauses. The results suggest that when learners attend to and discuss language form, they tend to produce more accurate texts. These results also point to the essence of creating interaction environments in which learners' attention is drawn to form because this kind of attention helps learners "understand the relationship between meaning, forms and function in a highly context-sensitive situation" (Swain, 1998, p. 69), which could result in L2 learning. Thus, it is suggested that promoting learners' attention to form during the interaction could be one of the ways to promote the accuracy of subsequently produced texts.

The results also revealed that semantically engaged talk predicted the complexity of the text measured by the proportions of clauses and T-units to all T-units. As described previously, during the semantically engaged talk, the learners focused on discussing task content. It is possible that the greater discussion of task content might have helped learners to form more complex ideas for the story they were asked to create. As a result, the complex ideas require the learners to use complex sentences to fully reflect their thoughts. This suggests that it is important to get the learners engaged in the discussion of the task content since it would lead to greater complexity of the written texts.

Notably, two measures of cognitive engagement—that is, LREs (discussion of language features) and semantically engaged talk (discussion of task content)—were both observed to have positive impact on text quality. These results indicate that learners were able to attend to multiple aspects (i.e., both language features and semantic content), rather than there being trade-off effects in their attention during task performance (see Lambert & Zhang, 2019). In addition, it should be noted that only cognitive and social engagement (e.g., LREs, semantically engaged talk, and perceived mutual help) were observed to predict the CAF of the written texts. Emotional engagement was not associated with text quality. These results indicate that cognitive and social engagement appear to directly affect the text quality whereas learners' emotional engagement does not seem to have an impact. Previous research suggests that emotions are closely linked to learners' cognitive and social engagement. Thus, emotional engagement (especially positive emotions) can still be arguably important to maintain to ensure that learners are cognitively and socially engaged in the interaction, which then directly affects the text quality.

CONCLUSION

This study investigated the impact of SCMC mode and familiarity with partners on learners' engagement and subsequent language production. The results suggest that video chat in the study's context was more facilitative of learner engagement in interaction than text chat. Features of video chat that seemed to promote learner engagement included the visibility of partners' facial expression and emotions, the speed of the conversation, and the feeling of being easy, quick, and effective to express and discuss ideas. The slowness of typing in the text chat and the absence of visual cues were reported to decrease learners' engagement. The results also suggest the benefits of pairing learners who are familiar with each other for facilitating learner engagement. Additionally, learners' cognitive and social engagement as measured by LREs, semantically engaged talk, and mutual help were observed to predict text quality. It should be noted that generalization of the results needs to be conducted with care due to the study's limitations. For instance, the study was conducted in an English-as-a-foreign-language context, and the participants were relatively homogeneous, sharing similar L2 learning and cultural background. Thus, these contextual factors specific to the context and the participants of this study might limit the generalizability of the results. Also, this study only focused on a single modal platform (video or text chat) in a tightly controlled lab-based setting. Given the advance of technology where multimodal platforms are available, it is not clear how the combined video and text chat platform affects learners' engagement especially in the classroom context. Moreover, only one type of task was used, so future research could explore whether different types of tasks would interact with the SCMC mode and interlocutor familiarity in affecting learner engagement. Despite the limitations, the study has some pedagogical implications. First, video chat could be a useful mode for implementing productive L2 task-based interaction. Second, it would be necessary for teachers to be aware of disadvantages of text chat and maximize its benefits when video chat is not available. Text chat, however, seems to suit some learners in the

current context, so teachers may also need to explore which group of learners prefer to use and benefit from this SCMC mode. Third, since learner engagement predicted text quality, maintaining and promoting learner engagement appears to benefit learners' subsequent language production. Fourth, given that familiarity among learners was observed to be critical to their engagement in SCMC, it would be necessary for teachers to create warm-up or getting-to-know activities for learners, especially at the start of their academic term, a course, a lesson, or even a task so that they can familiarize themselves with each other, which might then facilitate their engagement in subsequent activities. In conclusion, the current study has shed some light on issues as well as benefits regarding the characteristics of video and text chats, their impact on learner engagement, and subsequent language production. This study also contributes to understanding the critical role of familiarity among learners that teachers might need to be aware of and facilitate in order to promote learner engagement and subsequent L2 learning in online task-based interaction.

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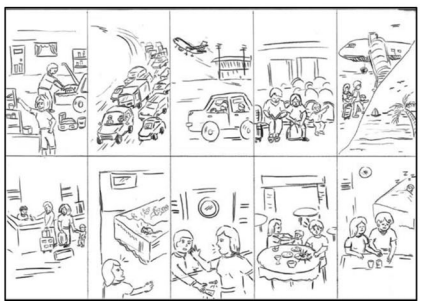
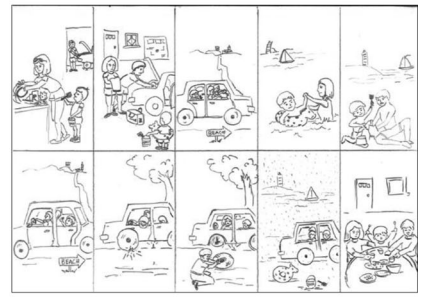
APPENDIX A

Task Pictures: Holiday Incidents

Set 1



Set 2



APPENDIX B

Engagement Questionnaire

Indicate whether you agree with the following statements. Circle a corresponding number in the scale (Vui lòng cho biết ý kiến của bạn với những câu dưới đây bằng cách khoanh tròn một con số trên thang điểm).

	Strongly disagree *Hoàn toàn không đồng ý*									*Strongly agree* *Hoàn toàn đồng ý*
Emotional engagement										
1. I felt that the task was enjoyable to do. *1. Tôi cảm thấy hoạt động rất thú vị để làm.*	1	2	3	4	5	6	7	8	9	10
2. I felt interested while I was doing the task. *2. Tôi cảm thấy hứng thú khi làm hoạt động.*	1	2	3	4	5	6	7	8	9	10
3. I felt excited while I was doing the task. *3. Tôi cảm thấy rất hào hứng khi làm hoạt động.*	1	2	3	4	5	6	7	8	9	10
4. I felt contented while I was doing the task. *4. Tôi cảm thấy rất vui khi làm hoạt động.*	1	2	3	4	5	6	7	8	9	10
5. I felt satisfied while I was doing the task. *5. Tôi cảm thấy hài lòng khi làm hoạt động.*										
6. I felt bored while I was doing the task. *6. Tôi cảm thấy chán khi làm hoạt động.*	1	2	3	4	5	6	7	8	9	10
7. I felt the task was tedious. *7. Tôi cảm thấy hoạt động rất tẻ nhạt.*	1	2	3	4	5	6	7	8	9	10
8. I felt annoyed while I was doing the task. *8. Tôi cảm thấy khó chịu khi làm hoạt động.*	1	2	3	4	5	6	7	8	9	10
9. I felt discouraged while I was doing the task *9. Tô cảm thấy thiếu động lực khi làm hoạt động.*	1	2	3	4	5	6	7	8	9	10
10. I felt frustrated while I was doing the task. *10. Tôi cảm thấy bực bội khi làm hoạt động.*										
Social engagement										
1. I involved my partner during the interaction. *1. Tôi tạo điều kiện để bạn tôi tham gia vào quá trình tương tác.*	1	2	3	4	5	6	7	8	9	10
2. I felt my partner involved me during the interaction. *2. Tôi cảm thấy bạn tôi luôn tạo điều kiện để tôi tham giang vào quá trình tương tác.*	1	2	3	4	5	6	7	8	9	10
3. I collaborated with my partner during the interaction. *3. Tôi hợp tác với bạn trong quá trình tương tác.*	1	2	3	4	5	6	7	8	9	10
4. I felt my partner collaborated with me during the interaction. *4. Tôi cảm thấy bạn tôi hợp tác với tôi trong quá trình tương tác.*	1	2	3	4	5	6	7	8	9	10
5. I responded to my partners' opinions during the interaction. *5. Tôi hồi đáp lại ý kiến của bạn tôi trong quá trình tương tác.*	1	2	3	4	5	6	7	8	9	10
6. I felt my partner responded to my opinions during the interaction. *6. Tôi cảm thấy bạn tôi luôn hồi đáp lại ý kiến của tôi trong quá trình tương tác.*	1	2	3	4	5	6	7	8	9	10
7. I helped my partner with language problems during the interaction. *7. Tôi giúp đỡ bạn tôi về vấn đề ngôn ngữ trong quá trình tương tác.*	1	2	3	4	5	6	7	8	9	10

	Strongly disagree *Hoàn toàn không đồng ý*									*Strongly agree* *Hoàn toàn đồng ý*
8. My partner helped me with language problems during the interaction *8. Bạn tôi giúp tôi về vấn đề ngôn ngữ trong quá trình tương tác.*	1	2	3	4	5	6	7	8	9	10
9. I responded to my partner's request of language help. *9. Tôi hồi đáp lại khi bạn tôi nhờ giúp đỡ về vấn đề ngôn ngữ.*	1	2	3	4	5	6	7	8	9	10
10. My partner responded to my request of language help. *10. Bạn tôi hồi đáp lại cho tôi khi tôi nhờ giúp đỡ về vấn đề ngôn ngữ.*	1	2	3	4	5	6	7	8	9	10
Cognitive engagement										
1. I attended to my own language issues during the interaction. *1. Tôi chú ý đến ngôn ngữ của tôi khi nói trong quá trình tương tác.*	1	2	3	4	5	6	7	8	9	10
2. I attended to my partner's language issues during the interaction. *2. Tôi chú ý đến ngôn ngữ của bạn tôi khi bạn nói trong quá trình tương tác.*	1	2	3	4	5	6	7	8	9	10
3. I provided feedback on my partner's language issues during the interaction. *3. Tôi đưa ra phản hồi về vấn đề ngôn ngữ của bạn tôi trong quá trình tương tác.*	1	2	3	4	5	6	7	8	9	10
4. I attended to my partner's opinions in order to complete the task. *4. Tôi xem xét và để ý đến ý kiến của bạn tôi để hoàn thành hoạt động.*	1	2	3	4	5	6	7	8	9	10
5. I attended to my own opinions in order to complete the task. *5. Tôi xem xét và để ý đến ý kiến của tôi để hoàn thành hoạt động.*	1	2	3	4	5	6	7	8	9	10
6. I thought hard to contribute ideas to complete the task. *6. Tôi suy nghĩ rất nhiều để đóng góp ý kiến nhằm hoàn thành hoạt động.*	1	2	3	4	5	6	7	8	9	10
7. I thought hard about my partner's contributing opinions/ideas during the interaction. *7. Tôi suy nghĩ rất nhiều về ý kiến đóng góp của bạn tôi trong quá trình tương tác.*	1	2	3	4	5	6	7	8	9	10
8. I always justified my opinions during the interaction. *8. Tôi luôn đưa ra giải thích về ý kiến của mình khi làm hoạt động.*	1	2	3	4	5	6	7	8	9	10
9. I provided a lot of ideas to contribute to the task. *9. Tôi đưa ra rất nhiều ý kiến để đóng góp hoàn thành hoạt động.*	1	2	3	4	5	6	7	8	9	10
10. I elaborated my ideas/opinions during the interaction. *10. Tôi luôn giải thích ý mình rất kỹ lưỡng trong quá trình tương tác.*										

APPENDIX C

Results of Exploratory Factor Analyses

Items	Loadings
Emotional engagement	
Positive emotions (Factor 1)	
I felt that that task was enjoyable to do.	.78
I felt excited while I was doing the task.	.83
I felt contented while I was doing the task.	.82
I felt interested while I was doing the task.	.52
Negative emotions (Factor 2)	
I felt discouraged while I was doing the task.	.52
I felt that the task was tedious.	.65
I felt bored while I was doing the task.	.70
Social engagement	
Perceived collaboration (Factor 1)	
I collaborated with my partner during the interaction.	.75
I felt my partner collaborated with me during the interaction.	.75
I responded to my partner's opinions during the interaction.	.77
I felt my partner responded to my opinions during the interaction.	.70
Mutual help on language issues (Factor 2)	
I helped my partner with language problems during the interaction.	.69
My partner helped me with language problems during the interaction.	.66
I responded to my partner's request of language help.	.81
My partner responded to my request of language help.	.82
Cognitive engagement	
Attention and thinking about language issues (Factor 1)	
I attended to my own language issues during the interaction.	.74
I attended to my partner's language issues during the interaction.	.70
I provided feedback on my partner's language issues during the interaction.	.56
I attended to my partner's opinions on language in order to complete the task.	.54
Attention and thinking about task content (Factor 2)	
I thought hard to contribute ideas to complete the task.	.88
I thought hard about my partner's contributing opinions/ideas during the interaction.	.75
I always justified my opinions during the interaction.	.49
I provided a lot of ideas to contribute to the task.	.44

APPENDIX D

Coding Examples for Semantically Engaged Talk

EXAMPLE 1

Reasoning to Support an Argument

1. P2: Uh… she slaps the … his husband
2. P1: I don't think the… he's her husband because I think he… this man is a staff of the airport

Example 1 illustrates an instance of learners' reasoning about task content. After P2 described a picture which features a woman slapping a man's face (line 1), Learner P1 disagreed and provided a reason ("the man is a staff of the airport").

EXAMPLE 2

Elaborating and Expanding Ideas

1. P1: you see where…maybe the receptionist hit the man uh hit the man in front of the desk when… maybe he wants to change room but receptionist shock shock on him
2. P2: Okay

In Example 2, P1 elaborated on the idea "the receptionist hit the man in front of the desk" by further explaining the action described in the picture "maybe he wants to change room but receptionist shock him."

EXAMPLE 3

Generating New Additional Ideas (i.e., idea units)

1. P2: Okay the… maybe the wife's angry with the receptionist
2. P1: Yes
3. P2: She was so angry there and she hit the receptionist

Example 3 presents two instances of new additional ideas when two learners were discussing a picture. P2 generated a new idea to describe a picture where a woman slaps a man's face (line 1) and then added a new idea unit (line 3) "she hit the receptionist."

EXAMPLE 4

Deciding on How to Best Express Ideas

1. P2: I'm gonna write down the food in the meal as well I am not be too detail because I am not gonna say in general like the seafood seafood like shrimp and octopus… that's it
2. P1: Alright make sense make sense

Example 4 describes an instance of semantically engaged talk in which P2 explained why she chose to refer to food in general to best describe the picture where a family is having a meal.

EXAMPLE 5

Deciding How to Carry Out the Task

1. P2: We can describe the beach that we forgot before if have enough time later
2. P1: Yes you can describe the beach if have time but I uh we need to write the intro first

Example 5 illustrates an episode of talk where the learners decide on how to proceed with the task. Since the allotted time for the task was limited, the learners decided to describe other details first (i.e., the introduction of the story) and return to describe the beach later if they had enough time.

EXAMPLE 6

Providing Reasons for Including or Excluding Ideas

1. P1: We need to have in the second paragraph …something missed something missed…have you deleted a sentence we missed a sentence the sentence when… don't don't don't type don't type …wait me …we missed the sentence is when the flight is ready was ready did you delete… we need to include it because it is describe before they check in hotel
2. P2: Okay understand… we include it… type it now

In Example 6, Learner P1 checked with his partner about the sentence "the flight was ready" and explained that this idea is important to be included because "it describe[s a scene] before they checked into a hotel" (line 1). Learner P2 agreed and added the sentence (line 2).

APPENDIX E

Coding Examples of Responsiveness

EXAMPLE 7

Encouraging Each Other to Talk

1. P1: What about the next pic … you say first… don't be shy
2. P2: uh…a lot of cars and traffic jam…

In Example 7, P1 invited his partner to talk—"what about the next pic?"—and encouraged him: "don't be shy." This talk encouragement resulted in P2's utterance to describe the picture.

EXAMPLE 8

Repeating Each Other's Utterance

1. P1: I think they go to they go at the beach
2. P2: Beach… yeah exactly I think so…and the next one I think they wanna go to the hotel and they check in they check in…

In Example 8, after P1 finished her utterance "I think they go at the beach," P2 repeated, albeit partially, "beach" and commented "yeah exactly I think so" as a confirmation of agreeing with what P1 said.

EXAMPLE 9

Completing Each Other's Utterance

1. P2: After this picture they have a dinner or the lunch uh
2. P1: Yes maybe in the restaurant
3. P2: In the restaurant yes

In Example 9, both learners responded to each other's talking turn. For example, P1 completed his partner's utterance "they have a dinner or the lunch" (line 1) by adding a location "in the restaurant" (line 2), which was acknowledged by P2.

EXAMPLE 10

Providing Backchannels for Agreement or Confirmation

1. P2: I think they travel an… travel to foreign country because they use airport
2. P1: Okay

After P2 finished her utterance (line 1), P1 agreed via a backchannel response "okay" (line 2).

EXAMPLE 11

Reflecting on Each Other's Utterances and Contributions

1. P1: Yeah what's happen next… I see the mother was screaming at the mouse
2. P2: It is a little mouse… she scares

Example 11 illustrates an instance of learner's responsiveness via reflection and extension of the partner's ideas. P2 reflected and built on her partner's ideas about the mouse and the mother and extending them to "it's a little mouse" and "she scares."

SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.