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An exploratory study on second language learner engagement in different types of interactive tasks in video-chat and text-chat communication

Abstract: This study investigated 48 Hong Kong English as a second language (ESL) learners' engagement in three types of interactive tasks conducted via video chat or text chat. The learners, paired with their university friends, completed a descriptive task, a narrative task, and a decision-making task. They were randomly assigned to either the video-chat or text-chat group and were interviewed about their emotional engagement in each task immediately after task performance. The findings revealed that both groups of learners were behaviourally the least engaged but cognitively the most engaged in the decision-making task. They experienced positive emotions during the descriptive task, but fewer reported positive emotions in the other two tasks. The text-chat group was the most socially engaged in the decision-making task. Furthermore, the video-chat group was behaviourally and emotionally more engaged than the text-chat group. These findings have implications for task design and selection in computer-mediated communication.

Keywords: learner engagement; interactive tasks; computer-mediated communication; video chat; text chat; L2 learning

Introduction

Learner engagement in online learning environments is crucial for successful learning and has been widely discussed (Diwan et al. 2023). The popularity of this research topic has surged in response to the increasing integration of technology into education, particularly since the onset of the COVID-19 pandemic (Brown et al. 2022). It is particularly important to focus on online learner engagement because, compared to traditional classroom learners, online students are more likely to face distractions (Hollis and Was 2016). These distractions, which can lead to lower academic performance, may include dependency on digital devices, multitasking, mind-wandering, unexpected interruptions, and consistent interference (Wang 2022). Given the differences between online and face-to-face learning environments, studies focusing on learner engagement in online environments are necessary to provide pedagogical guidance for the design of online learning activities.

While the engagement of second language (L2) learners in online learning contexts has been investigated (Jiang and Peng 2023), further exploration is needed regarding their engagement in peer interaction within online classrooms. This is not only because communicative competence is fundamental for effective L2 communication

(Littlewood 2011) but because developing L2 communicative competence online presents significant challenges. Previous studies have shown that due to physical distance and the lack of visual cues, L2 learners may be less engaged when interacting with peers in computer-mediated communication (CMC) (Carver et al. 2021). They may even be reluctant to negotiate meaning despite nonunderstanding (van der Zwaard and Bannink 2016). Given the prevalence of online learning and the challenges of engaging learners in such environments, it is necessary to conduct research to identify engaging classroom activities.

Recent task-based research reveals that L2 learners' engagement in oral tasks in CMC can be influenced by various factors, such as task type and different CMC modes (Dao 2021; Qiu and Bui 2022a; Ziegler and Phung 2019), and thus teachers need to consider these factors when selecting tasks. However, given that the research topic of learner engagement in task-based language teaching (TBLT) is relatively new and not many studies focus on task type effects on L2 learner engagement in different CMC modes (e.g., text chat and video chat), more empirical studies are needed to provide teachers with evidence pertaining to appropriate task selection. Against this back- drop, this study investigates the effects of three types of interactive tasks on Hong Kong English as a second language (ESL) learners' task engagement under two CMC modes using Zoom software: text chat (typing in the chat to interact with the partner) and video chat (using the video conferencing function to communicate). Two research questions guide the present study:

What are the effects of the three task types (descriptive, narrative, and decision-making) on Hong Kong ESL learners' task engagement through video chat and text chat?

What are the effects of communication modes (text chat versus video chat) on Hong Kong ESL learners' task engagement?

L2 learner engagement in interactive tasks

In this study, we explored learner engagement at the activity level, focusing on engagement from a task-based perspective. Tasks are meaning-based activities for learners to exploit their linguistic resources to achieve communicative purposes (Ellis 2003). We drew on Philp and Duchesne's (2016) task engagement framework, specifically designed to investigate the effects of different task factors on learner engagement in both face-to-face communication (FTF) and CMC. In alignment with Fredricks and colleagues' (2004) understanding of student engagement and considering the specific context of peer interaction in task performance, Philp and Duchesne (2016: 3) define learner engagement as 'a state of heightened attention and involvement, in which participation is reflected not only in the cognitive dimension, but in social, behavioral, and affective dimensions as well'.

Behavioural engagement refers to participation in tasks and is often measured by word counts (Bygate and Samuda 2009) and turn counts (Dörnyei and Kormos 2000). Cognitive engagement reflects learners' mental efforts, such as their efforts to clarify content-related and language-related issues during task performance (Lambert and Zhang 2019). Affective/Emotional engagement is related to learners' emotions during task performance, including task-facilitating emotions such as enjoyment and task-withdrawing emotions such as anxiety (Skinner et al. 2009). Social engagement refers to social support during interactions such as the listener's use of affiliative backchannels (e.g. "okay", "yes", laughter, expressions of sympathy and surprise, and enthusiastic repetitions or interruptions) to the speaker's utterance (Aubrey and Philpott 2023). This multidimensional engagement model has been proven to be appropriate for exploring learner engagement in CMC (Baralt et al. 2016; Carver et al. 2021) as it captures how learners engage in task performance in either video chat or text chat from different dimensions.

Existing studies reveal that task engagement can be influenced by various factors. It can be enhanced by selecting a familiar (Aubrey et al. 2022) and meaningful topic (Vo 2023), providing pre-task planning time (Qiu and Bui 2022a), offering learners opportunities to generate task-related content (Nakamura et al. 2021), and including a convergent task goal that requires a consensus among learners (Dao 2021). While these findings provide insights into designing an engaging task, most concern learner engagement in FTF, with relatively few investigating how different task types and different synchronous computer-mediated communication (SCMC) modes influence learner engagement. With the rise of online teaching and learning, L2 teachers may need to understand how to choose appropriate task types to engage learners in tasks in SCMC. This study targets three common task types and aims to provide implications on how teachers can use different types of tasks to engage learners in different SCMC modes.

Task type and learner engagement

Task type is a crucial task factor in task design, significantly affecting L2 learners' oral performance (Robinson 2011; Skehan 2014). Task type can be interpreted from various perspectives such as tasks with convergent and divergent goal orientation (Dao 2021), or focused versus unfocused tasks (Ellis 2003). This study explores three types of interactive tasks commonly adopted in textbooks and task-based research (Ellis 2018; Foster and Skehan 1996; Garcia-Ponce and Tavakoli 2022; Geng and Ferguson 2013). These tasks include descriptive tasks (spotting differences between two pictures), narrative tasks (narrating a story based on picture prompts), and decision-making tasks (recommending the most appropriate course to a friend). Notwithstanding the wealth of findings on task type effects and L2 performance, research on how these task types affect learner engagement is scarce. Even less is known about how to implement these different tasks in SCMC. Studies addressing task

type effects on learner engagement are needed because these task types differ in terms of task complexity, discourse demand, and input materials. Understanding what L2 learners prefer is essential for practitioners to design engaging tasks for their students. Regarding task complexity (or cognitive demands of tasks) (Robinson 2011), descriptive tasks do not require reasoning demand, whereas reasoning is needed when learners explain how to sequence different pictures into a logical story in narrative tasks and why they prefer a specific course over others in decision-making tasks. Therefore, descriptive tasks (with no reasoning demand) are cognitively less demanding than narrative and decision-making tasks (with reasoning demand). Previous studies (e.g. Baralt et al. 2016) reported mixed findings on task complexity effects on learner engagement in different SCMC modes. For example, Baralt et al. (2016) focused on text-chat interaction and found that Spanish as a second language learners expressed more negative emotions (e.g. boredom and anxiety) in the complex task (with reasoning demand) than in the simple one (without reasoning demand). This was due to the high cognitive demand and their unfamiliarity with their partners. Their cognitive engagement in the two tasks did not significantly differ. In contrast, in Qiu's (2022) study on EFL learners' engagement in video chat, task complexity enhanced cognitive engagement because the learners relied on verbal exchanges to negotiate meaning. The learners enjoyed the challenging task and experienced various positive emotions in complex tasks. The inconsistent findings might be due to several reasons. Firstly, task complexity effects on learner engagement may be subject to different SCMC modes, and learners may have different degrees of engagement in different tasks under different SCMC modes. Secondly, learners in Qiu's study formed their self-initiated pairs with their friends and had attended online classes in video chat for more than one year by the time of data collection. Their familiarity with partners and video chat may also contribute to their task engagement.

Furthermore, the three task types necessitate different genres and impose varying discourse demands on learners' speech production (Yule 1997), affecting task difficulty (Foster and Skehan 1996; Geng and Ferguson 2013). Descriptive tasks, requiring single-word labels and short phrases for information exchange, are less demanding. Narrative tasks can be more demanding than descriptive tasks because learners not only need to describe pictures but are also expected to do storytelling. Decision-making tasks are the most challenging because learners need to compre- hend written text, discuss abstract relationships among the different components and reach an agreement. Garcia-Ponce and Tavakoli (2022) examined the effects of a personal information exchange task, a narrative task, and a decision-making task on learner engagement. They found that the personal information task elicited the least amount of scaffolding (social engagement) because of topic and task familiarity. The narrative task was the least engaging behaviourally due to high task difficulty and controlled output. In contrast, the decision-making task was the most engaging both behaviourally and socially due to learner autonomy in deciding on the content and linguistic expressions. Although Garcia-Ponce and Tavakoli did not attend to emotional engagement in their study, their findings imply that reasons underlying task type effects on learner engagement may include not only discourse demand and task dif- ficulty but also learner autonomy (Nakamura et al. 2021). However, given that Garcia- Ponce and Tavakoli only focused on FTF, their findings might not be applicable to SCMC.

Additionally, the three task types also differ in input materials. Descriptive tasks entail the analysis of a single picture, whereas multiple pictures are used in narrative tasks. Instead of including any pictures, decision-making tasks involve short para- graphs of course information. Given input materials (e.g. picture versus written text) have been found to affect L2 acquisition (Zhang and Zou 2022), it is essential to consider the types of input materials in task design, especially in the computer- assisted language learning context where multimodality is prevalent (Guichon and McLornan 2008). Some studies (e.g. Kormos et al. 2022) have found that written input may lead to alignment effects on L2 learners' subsequent production (e.g. uttering the vocabulary appearing in the text in speech), whereas such effects may not occur when picture prompts are used. Despite this, it remains unclear how such alignment effects, if any, affect task engagement. Furthermore, the rationale behind the impact of different input materials on L2 production and learner engagement might also be related to learners' preferences or learning styles. Previous studies have reported that learners' preferences for the type of input materials are related to their learning styles (Lodge et al. 2016), which is further connected to learner engagement (Almasri 2022). Learning styles refer to people's preferred ways of receiving and processing information, such as visual, reading/writing, aural and kinaesthetic styles (Fleming 2006). Sun and Zhang (2020) found that the auditory/visual learning style (e.g. watching TV in L2) contributed to the development of L2 speech production ability. This was because videos could be shot in the authentic L2 environment and thus developed a sense of authenticity. The

participants' preferences for auditory/visual input materials also led to enhanced self-confidence about L2 speaking. Although Sun and Zhang's study and other studies reviewed above did not examine the relation- ship of learning styles and learner performance and engagement in different types of oral tasks, their findings imply a possibility that task engagement can be influenced by learners' preferences for the input materials that fit well with their learning styles. For example, a visual learner may find the tasks with picture prompts more engaging and experience more positive emotions than those with written texts because of the sense of authenticity, whereas a writing-style learner may be more engaged in the decision-making task with reading paragraphs because the written text facilitates their processing of information. While these remain hypothesised, we believe that it is important to explore the effects of task types on learner engagement in SCMC so that more concrete suggestions can be offered to L2 teachers.

Communication mode and learner engagement

Task-based scholars (e.g. Baralt et al. 2016) argue that L2 learners may engage differently in tasks performed in various communication modes. While numerous studies have compared task engagement in FTF and CMC (Aubrey and Philpott 2023; Carver et al. 2021), relatively few have explored how different kinds of SCMC modes affect task engagement. This research is necessary for several reasons. SCMC, specifically text chat, has also been found to benefit L2 learning by encouraging frequent production of language-related episodes (Yamada 2009) and discussion of linguistic forms (Warschauer 1996; also cited in Smith and Ziegler 2023) because compared with FTF and video chat, text chat allows learners to have longer processing time, which reduces their anxiety (Cote and Gaffney 2021). The low anxiety level enhances learners' willingness to communicate (Lee et al. 2022), leading to active participation in task performance (González-Lloret 2020). Qiu and Bui (2022b) also found that some Hong Kong ESL learners preferred interacting through video chat to FTF because they could stay at home (a comfortable surrounding environment) and felt a lower degree of communication pressure. Therefore, we believe that equipping learners with communicative competence in CMC is essential and beneficial. However, given the limited evidence in the current literature, uncertainties still exist regarding which SCMC mode should be adopted and how to select appropriate tasks for different SCMC modes; therefore, more research is warranted. Despite these strengths, SCMC is regarded by some L2 learners as less engaging than FTF because there are physical distance and latency time and interlocutors may not see each other's gestures clearly (van der Zwaard and Bannink 2016). However, after experiencing online learning during the pandemic, Hong Kong ESL learners' engagement in decision- making tasks revealed that video-chat learners may have been behaviourally more engaged in task performance than their peers who engaged in FTF (Qiu 2022). The findings indicate that we need to reconsider the effects of SCMC modes on task-based interactions.

Text chat and video chat are two SCMC modes commonly used inside and outside L2 classrooms. Both modes share some similar features, such as the physical distance between the interlocutors, but they also differ in some ways. While learners have longer processing time in the text-chat mode (Smith and Ziegler 2023), their speech production needs to be quite spontaneous in the video-chat mode, making task performance more challenging. The different features of the two modes may affect task engagement (Aubrey 2022; Dao et al. 2021). While most existing studies on learner engagement and SCMC focused on the comparison of a certain kind of SCMC mode and FTF and found that the nature of SCMC needs to be deliberated when designing L2 interactive tasks (Baralt et al. 2016), Dao et al. (2021) compared Viet- namese EFL learners' engagement in collaborative writing tasks in video chat and text chat and reported that video chat could better engage the learners in task performance cognitively, affectively, and socially than text chat did because they could see their partners in video chat. The learners found interaction in text chat to be slow, and the invisibility of their partners also negatively impacted their emo- tions. Similarly, Aubrey's (2022) study on Hong Kong ESL learners' dynamic engagement in collaborative problem-solution L2 writing tasks also suggested that the learners were more focused and interested in tasks performed in video chat than in text chat. These findings echo Ziegler and Phung's (2019) study on learner engagement in task-based interaction in four different SCMC modes (i.e. text chat, audio chat, video chat, and multimodal chat [video plus text chat and screen share]), which revealed that multimodal chat and video chat were cognitively more engaging and that learners preferred these modes because the visibility of their partners enhanced social engagement. Although these findings yield pedagogical implications for task design in SCMC, none compared task type effects on learner engagement in different SCMC modes. Since the three types of tasks discussed in the earlier section differ from each other in various aspects, it is possible that L2 learners engage in different task types dissimilarly under video chat and text chat. They may be more engaged in decision-making tasks than other task types in video chat but are less engaged in decision-making tasks in text chat. This is because previous studies reported that task complexity encouraged verbal exchanges and meaning negotia- tion in video chat (Qiu 2022) but learners were found to be less engaged in complex tasks than in simple ones in text chat due to the lack of social presence and their unwillingness to communicate in the chat mode (Carver et al. 2021; Dao et al. 2021). This claim, however, remains speculative and should be testified in the current study.

Methods

This exploratory study investigated how three types of tasks (descriptive, narrative and decision-making) affect Hong Kong ESL learners' engagement in task perfor- mance in video chat and text chat. It also explored the effects of different SCMC modes (video chat vs. text chat) on L2 learner engagement in task performance. In this study, task engagement was the dependent variable, whereas task type and communication mode were independent variables. Text chat means that learners worked in dyads on tasks in Zoom and typed in the chat to interact with each other; they did not turn on their microphones or cameras (Carver et al. 2021). Video chat refers to 'the contiguous communication of two or more people, typically accomplished through the use of Voice-over Internet protocol (VoIP)' (Jenks and Firth 2013: 217). Learners turned on their video and used a microphone to chat with their partners synchronously. Details of the design are presented in the following paragraphs.

Participants

Forty-eight ESL learners, specifically undergraduate students from six different universities in Hong Kong who speak Chinese as their first language, voluntarily participated in this study. They were recruited via mass emails, posters and their English teachers. They were between 18 and 22 years old and had learned English for at least nine years by the time of data collection. Three were male, and the rest were female. They paired up with their university friends and signed up for the study. Before they performed the tasks, they completed a C-test1 (Qiu 2022), which is a cloze test assessing their general English proficiency. The test comprised five short pas- sages with blanks. Based on their C-test scores, the participants were randomly divided into two equal groups: the video-chat group (n = 24) and the text-chat group (n = 24). An independent t-test was conducted with R software version 4.3.1 to compare the scores of the two groups. No significant differences were found in the C-test scores between the video-chat group (M = 56.58, SD = 15.40) and the text-chat group (M = 57.46, SD = 14.17) ($t = 0.20$, $p = 0.84$).

1 The C-test used in this study contains five short reading passages whose validity and reliability have been tested in the existing literature (Babaii and Ansary 2001; Dörnyei and Katona 1992). In each passage, the first and last sentences were complete whereas some words in the rest of the passage was removed. The first letter of each word was provided. The participants were asked to fill in the blanks. There were 102 blanks in total. The C-test has been found to be a valid and reliable method to measure L2 general proficiency (Daller et al. 2021).

Instruments

Interactive tasks

Three two-way interactive tasks (see Appendix A) were designed. In the descriptive task, the learners, in their self-initiated dyads, described a picture of a street in Hong Kong, which was different from their partner's, and spotted 10 differences between the two pictures. In the narrative task, the learners were given four/five pictures different from their partners' and were asked to describe the pictures, sequence them and narrate a story based on a total of nine pictures. In the decision-making task, each participant was given two general education courses that were different from their partners'; they needed to recommend the most appropriate course from the four options to an exchange student at a Hong Kong university. The course information and background information on the exchange student were given in written form.

Semi-structured interview

After each task performance, the participants were interviewed about their emotional experiences with each task. The purpose was to capture their affective engagement. The participants first used adjectives or nouns to report their emotions. The first author then asked about the reasons underlying their emotional experiences. The interview was conducted in Chinese. The interview protocol is available in Appendix B.

Data collection

For recruiting participants, the learners were asked to form self-initiated pairs and sign up for the study voluntarily. They read the information sheet and signed the consent form. During the study, the participants were asked to stay at home to perform the tasks in a counterbalanced order (Table 1) in video/text chat in a Zoom meeting room to avoid the practice effects. Admittedly, the researchers could not monitor the participants' task performance at home, but we still decided on this format because the participants had attended online classes at home for around two years by the time of data collection and were familiar with such an environment. Some of their classes (e.g. lectures and seminars) required them to use text chat for classroom interaction, whereas others (e.g. small-group tutorials) preferred videoconferencing. The participants also reported that they were familiar with both the video-chat and text-chat functions in Zoom and had used them before data collection.

Table 1: Counterbalanced orders.

	Text-chat (*n* = 24)	**Video-chat (*n* = 24)**
Sequence A	Descriptive → Narrative → Decision (*n* = 4)	Descriptive → Narrative → Decision (*n* = 4)
Sequence B	Narrative → Decision → Descriptive (*n* = 4)	Narrative → Decision → Descriptive (*n* = 4)
Sequence C	Decision → Descriptive → Narrative (*n* = 4)	Decision → Descriptive → Narrative (*n* = 4)
Sequence D	Descriptive → Decision → Narrative (*n* = 4)	Descriptive → Decision → Narrative (*n* = 4)
Sequence E	Narrative → Descriptive → Decision (*n* = 4)	Narrative → Descriptive → Decision (*n* = 4)
Sequence F	Decision → Descriptive → Narrative (*n* = 4)	Decision → Descriptive → Narrative (*n* = 4)

Three minutes were set as the planning time for each task (Qiu 2022). Before data collection, the first author invited four Hong Kong ESL learners to perform the tasks as a pilot test, and the students mentioned that they needed three minutes to prepare their speech. During the planning time, the participants were allowed to write down notes on a piece of paper or type in a Word document. However, they were not allowed to interact with each other or refer to other resources. There was no time limit on task performance. The video-chat pairs performed the tasks with micro- phones and cameras, whereas the text-chat pairs typed in the chat box. Their performances were videotaped using the recording function on Zoom. The data in the chats were recorded by Zoom automatically and a transcript was generated for each task performed by each dyad after their performance.

Immediately after completing each task, both groups of participants turned on their cameras and microphones and were interviewed by the first author. They were explained about the concept of emotional engagement and then asked to use adjectives or nouns to describe their emotional experience during task performance and explain the reasons underlying their emotions. Upon the completion of all three tasks, they were also asked to compare their emotions in the three tasks and explain the similarities and differences of emotions across task types, as well as to report on their emotions about the communication mode. The interview was conducted individually, videotaped in Zoom, and lasted around 25 minutes in total.

Data analysis

Two sets of data were collected: the discourse on task performance and the interview data. The spoken discourse of the video-chat group was first transcribed by iflyrec software and then manually checked by a research assistant. The pruned form of the discourse was generated, excluding repetitions, false starts, filled pauses, hesitations, self-repairs, and incomplete utterances. For the text-chat group, we used the transcripts generated by Zoom for analysis. The transcripts were measured by indicators of behavioural, cognitive, and social engagement. (1) Word count (total number of words produced in each task) and (2) turn count (number of turns uttered in each task) were adopted to measure behavioural engagement (Bygate and Samuda 2009; Fredricks et al. 2004). Cognitive engagement was measured using three indicators: (3) average occurrence of elaborative clauses per 100 words (clauses serving to 'expand on semantic content with additional elaborations including details, reasons, suggestions, propositions and opinions' [Lambert and Zhang 2019: 393]), (4) average occurrence of moves aiming at clarifying content-related issues per 100 words and (5) moves to clarify language-related issues per 100 words (Lambert and Zhang 2019). As for social engagement, we also included an indicator: the average occurrence of affiliative backchannels per 100 words, which 'go beyond simple acknowledgment to include laughter, expressions of sympathy and surprise, and enthusiastic repetitions or interruptions' (Aubrey and Philpott 2023: 6). Examples of the cognitive and social engagement indicators are given in Appendix C.

The first author and a research assistant individually analysed the data from six video-chat and six text-chat transcripts. The results were then input into SPSS soft- ware version 27 for Spearman's rank correlation test, as the data were not normally distributed. A strong correlation ($r > 0.80$) was found, indicating high intercoder reliability. Then, the first author completed all the data analysis and used SPSS software for the inferential statistical analyses. Since all the data sets were not normally distributed, we opted for non-parametric tests when comparing the means of different measures among different task types and between the two communi- cation modes. Bonferroni correction was conducted to avoid Type I errors, after which the alpha was adjusted to 0.008 because six tests were conducted to compare the engagement results of different tasks across the two SCMC modes. For RQ1, Friedman tests, together with the pairwise comparisons with the pairwise signed- ranks exact tests, were conducted to examine the effects of task type on behavioural, cognitive and social engagement under the video-chat and text-chat modes, respec- tively. For RQ2, Wilcoxon signed-ranks tests were performed to compare learner engagement in each task type between the two communication groups.

The interview data were also transcribed by iflyrec and then manually checked by two research assistants. The transcripts were then translated into English by a research assistant. The first author selected the interview data of six participants for a back-translation which revealed that the assistant's translation was accurate. After the back-translation, the first author worked with the third author to compare the words and expressions relating to task-facilitating and task-withdrawing emotions and discussed on if the English translation was effective in presenting the partici- pants' emotions described in Chinese. We had five cases that we were uncertain if the English translation accurately described the participants' emotion. The first author invited the participants to explain their emotions and provide an English translation. Content analysis of the transcripts was conducted. We focused on task-facilitating emotions (e.g. enjoyment and fun) and task-withdrawing ones (e.g. boredom and anxiety) mentioned by the participants (Reeve 2012; Skinner et al. 2009) and compared their emotional experiences in different tasks and different communi- cation modes. The first author and a research assistant individually coded the data on three video-chat and three text-chat participants. Their coding was compared, and discrepancies were further discussed and resolved. The data analysis was conducted by the first author, sent to the third author for checking, and finalised. The results are reported in the following section.

Results

The results are divided into quantitative and qualitative parts and reported ac- cording to the two research questions.

Quantitative results

The main effects of task type

Table 2 shows the descriptive statistics reflecting task engagement. The means and standard deviations (in parentheses) for each task and each group are reported. Friedman tests were conducted to compare the measures of various types of learner engagement across the three types of tasks.

Regarding behavioural engagement, significant differences were respectively found in terms of word count in the video-chat (Chi-square = 13.00, $p = 0.002$) and text- chat groups (Chi-square = 14.30, $p = 0.001$). Pairwise comparisons revealed that the video-chat participants produced significantly fewer words in the decision-making

Table 2: Descriptive statistics.

	Indicators	Descriptive		Narrative		Decision-making	
		Video	Text	Video	Text	Video	Text
Behavioural	Word count	660.04	207.67	590.29	249.50	485.04	137.00
		(324.76)	(87.81)	(407.95)	(141.22)	(235.96)	(66.49)
	Turn count	78.42	18.29	49.17	12.21	31.13	5.33 (2.46)
		(39.72)	(9.45)	(38.18)	(7.64)	(19.00)	
Cognitive	EC	0.27 (0.50)	0.13 (0.46)	0.54 (0.95)	0.36 (0.56)	3.00 (1.73)	3.13 (2.58)
	Content	0.14 (0.27)	Null	0.11 (0.22)	0.04 (0.15)	0.12 (0.28)	Null
	Language	0.26 (0.45)	Null	0.25 (0.85)	0.08 (0.30)	0.12 (0.39)	Null
Social	Backchannel	0.70 (0.52)	0.04 (0.11)	1.30 (0.99)	0.41 (0.43)	1.08 (0.98)	0.89 (0.94)

task than in the descriptive task ($p < 0.001$, Cohen's $d = 0.762$); the text-chat learners uttered significantly fewer words in the decision-making task than in the descriptive task ($p = 0.003$, $d = 0.91$) and the narrative task ($p = 0.003$, $d = 1.02$). Regarding turn-taking, similarly, significant differences among the three tasks were also found in both the video-chat (Chi-square = 32.33, $p < 0.001$) and text-chat groups (Chi-square = 19.00, $p < 0.001$). For the video-chat group, more turns were found for the descriptive task than the narrative ($p < 0.001$, $d = 0.75$) and decision-making tasks ($p < 0.001$, $d = 1.52$). For the text-chat group, the learners uttered fewer turns in the decision-making task than in the descriptive one ($p < 0.001$, $d = 1.88$) and the narrative one ($p < 0.001$, $d = 1.21$).

Regarding the cognitive engagement indicators, the Friedman tests suggested significant differences were only found for elaborative clauses (text chat: Chi- square = 24.51, $p < 0.001$; video chat: Chi-square = 36.70, $p < 0.001$) for both the video- and text-chat groups. For the video-chat group, the decision-making task encouraged the most elaborative clauses compared to the descriptive one ($p< 0.001$, $d = 2.14$) and the narrative one ($p< 0.001$, $d = 1.76$), but no significant differences ($p> 0.008$) were found between the descriptive and narrative tasks. The same trend was found for the text-chat group (decision-making versus descriptive: $p < 0.001$, $d = 1.62$; decision- making versus narrative: $p< 0.001$, $d = 1.48$). No significant differences were found in the other two indicators ($p> 0.008$).

As for the frequency of backchannels (social engagement), differences were found for the text-chat group (Chi-square = 18.35, $p < 0.001$) but not for the video-chat group ($p > 0.008$). The text-chat learners produced more affiliative backchannels in the decision-making task than in the descriptive task ($p < 0.005$, $d = 1.26$) and in the narrative task ($p < 0.001$, $d = 0.66$).

2 According to Plonsky and Oswald (2014), the thresholds for small, medium, and large effect sizes are 0.40, 0.70, and 1.00, respectively.

Comparison of learner engagement in two communication modes

For the descriptive task, Wilcoxon tests revealed that the video-chat learners produced significantly more words ($W = 315$, $Z = -5.63$, $p < 0.001$, $d = 1.90$), turns ($W = 320$, $Z = -5.53$, $p < 0.001$, $d = 2.08$), content negotiation ($W = 492$, $Z = -3.05$, $p = 0.002$, $d = 0.73$), language negotiation ($W = 468$, $Z = -3.49$, $p < 0.001$, $d = 0.82$) and affiliative backchannels ($W = 331.5$, $Z = -5.56$, $p < 0.001$, $d = 1.76$) than their text-chat peers, but the occurrences of elaborative clauses ($p = 0.083$) between the two groups were similar. For the narrative task, the video-chat learners seemed to be more engaged than their text-chat peers in terms of word count ($W = 387.5$, $Z = -4.13$, $p < 0.001$, $d = 1.12$), turn count ($W = 392.5$, $Z = -4.01$, $p < 0.001$, $d = 1.34$) and affiliative backchannels ($W = 403.5$, $Z = -3.82$, $p < 0.001$, $d = 0.82$). However, the two groups did not significantly differ from each other in elaborative clauses ($p = 0.621$), content negotiation ($p = 0.127$) and language negotiation ($p = 0.931$).

In terms of the decision-making task, the video-chat learners were behaviourally more engaged than the text-chat group because they uttered more words ($W = 312$, $Z = -5.69$, $p < 0.001$, $d = 2.01$) and more turns ($W = 307$, $Z = -5.81$, $p < 0.001$, $d = 1.90$). However, their cognitive and social engagement seemed to be quite similar, as no significant differences between the two groups were found in terms of elaborative clauses ($p = 0.828$), content negotiation ($p = 0.010$), language negotiation ($p = 0.039$) and affiliative backchannels ($p = 0.408$).

Table 3 summarises the quantitative results.

Qualitative findings of emotional engagement

Task type and engagement

The video-chat group

Content analysis was conducted using the interview data from the video- and text- chat groups. In the video-chat group, all 24 learners reported their positive emotions

Table 3: Summary of the results.

RQ1. Task type effects	*Behavioural engagement:* descriptive > decision-making (both groups) narrative > decision-making (text-chat) *Cognitive engagement:* decision-making > descriptive & narrative (both groups) *Social engagement:* decision-making > descriptive & narrative (text-chat only)
RQ2. Video-chat versus text-chat	*Behavioural engagement:* video-chat > text-chat *Cognitive engagement:* video-chat > text-chat (descriptive task only) *Social engagement:* video-chat > text-chat (descriptive & narrative tasks only)

when performing the descriptive tasks, including feelings of fun (19 participants), happiness (7), engagement (6), relaxation (3), and excitement (2). Their positive emotions were related to the task features. One major reason for their positive emotions was the game-like features of the task. For example, Student 14 (S14) explained, 'The task is quite fun because it develops our thinking skills'. Her partner, S13, echoed her positive emotional response, saying, 'It's fun when I figured out each answer'. Another reason was the appeal of the colourful pictures. Compared to the decision-making task, which included written paragraphs about course information, pictures 'did not impose much cognitive load and [learners] have the freedom to decide on what to say' (S4). Additionally, the colourful pictures depicting familiar scenes in Hong Kong led to their emotional engagement (e.g. S24).

Despite their positive responses, S7 and S24 also reported negative emotions towards this task. S7 found the descriptive task less engaging because describing details was challenging. S24 felt somewhat nervous because it was an experiment, not natural communication.

Compared to their strong preference for the descriptive task, only five video-chat participants (21 %) experienced positive emotions during the narrative task, while seven (29 %) had negative emotions. Four found the task fun because combining and ordering pictures was more engaging than simply spotting differences. S7 and S8 felt confident when ordering the pictures because 'the answer is open-ended and any kind of logical sequencing makes sense'.

While pictures seemed to facilitate five participants' engagement, they also hindered seven participants from completing the tasks smoothly. For example, S3 felt

resigned (Chinese: 气馁的) because she was not creative and had difficulty creating a

story. S5 felt worried about whether she properly described the pictures and whether

she made her partner (S6) understand. S6 was confused that she could not link her pictures with S5's. The difficulties in understanding each other's pictures and narrating a story made S5 and S19 feel that the task was not as fun.

Furthermore, seven participants (29 %) had positive emotions in the decision- making task, whereas five (21 %) reported negative emotions. Their positive emo- tions were partly due to the relevance of the task to their university lives. S14 found the task fun and felt relaxed during the performance: 'There is the brainstorming process, and I need to analyse the courses. It's like something that happens in my real life.'

On the contrary, the learners felt disengaged (2), nervous (2), and bored (1) when performing the decision-making task, and two were less happy. For example, S18 felt bored and disengaged because the task left her with the impression that she was attending an English language class.

Text-chat group

Similar to the video-chat group, a majority of the text-chat participants (18 participants, 75 %) reported positive emotions when completing the descriptive task. They found the task fun (11) and felt relaxed (6), excited (2), engaged (2), happy (1) and curious (1). This was partially because they found the task relatively easy (e.g. S46) and required frequent interactions (e.g. S26). S25, S30 and S39 were curious about their partners' pictures and thus found the task fun. S29 felt happy and accomplished upon discovering all 10 differences.

However, eight participants (33 %) expressed their negative emotions, including confusion (2), nervousness (2), boredom (1), disengagement (1), worry (1), and a relatively low level of interest (1). One reason was their uncertainty about how to accurately describe the picture, as 'it was a bit abstract' (S37). Another reason was their fear of missing important details, which could prevent them and their partner from finding all the differences (e.g. S41).

Compared to the video-chat participants, more text-chat students (n = 16, 67 %) reported positive emotions towards the narrative task, including fun (11), engage- ment (3), relaxation (3), happiness (1), excitement (1) and curiosity (1). This result may be due to three reasons. First, the autonomy provided by ordering the pictures and narrating a story contributed to their positive emotions. Second, pictures reduced the input cognitive load, making the task easier than the decision-making one (e.g. S34). Third, storytelling was more likely to motivate participants to communicate. For example, S28 mentioned that she enjoyed interacting with her partner to learn more about the missing part of the study.

However, 10 participants (42 %) found the narrative task a bit boring (4) and challenging (1) and felt confused (4), disengaged (3), and unhappy (1). Their negative emotions were primarily due to their struggles with understanding the content of each picture and ordering them logically. For instance, S29 was really nervous because she could not visualise her partner's pictures based solely on the chats. Although S25 and her partner were able to visualise each other's pictures, she felt rather confused during task performance: 'The process was chaotic. Actually, I can narrate a complete story based on my pictures. My friend's pictures can be another independent story. I don't know how to sequence all of them'.

When comparing emotional engagement in the descriptive and narrative tasks, the text-chat learners appeared to be less emotionally engaged in the decision- making task, with 15 (63 %) expressing negative emotions and only 10 (42 %) experiencing positive emotions. Their positive experiences were mainly due to the scaffolding of the written texts. S29, S30, and S35 were engaged because it was easy for them and their partners to reach an agreement based on the course information and the exchange student's

information. S26 felt relaxed because she ‘was given information about the courses and could simply summarise the course content and pick the best one using the phrases and expressions in the task sheet’.

For those who reported negative emotions towards the decision-making task, six attributed their negative experiences to the written course information. S36 found the task less engaging than others, and S28, S33, S34, and S38 found the task not so fun because they were reluctant to read the short paragraphs. S41 perceived this task as difficult because she needs to consider different aspects of course information before deciding on an appropriate course. To summarise, the text-chat participants tended to be emotionally more engaged in the descriptive and narrative tasks than in the decision-making tasks.

Communication modes and engagement

The interviewees were also asked about their emotional experiences when using the video-/text-chat functions to perform the tasks. Twenty video-chat learners (83 %) perceived that they were familiar with video chat and Zoom and thus the communication mode did not obviously affect their task engagement. They were similarly engaged in both video chat and face-to-face communication. S1, S2, and S12 felt relaxed when speaking on Zoom because the physical distance between them and their interlocutors created a sense of security. However, S23 was not engaged on Zoom, as speakers needed to attend to the task materials and could not see each other's facial expressions.

In comparison, 16 participants (67 %) attributed some of their emotions to the text-chat mode. S37 and S48 were relaxed and S47 felt comfortable when typing. S47 explained, 'There is time pressure when speaking. I feel embarrassed. But if I type, I have more time to think about the content and vocabulary.'

Despite the benefits, 13 participants reported negative emotions. They felt disengaged (2), irritated (2), unhappy (2), confused (2), anxious (2), tired (1), worried (1), nervous (1), resigned (1) and challenged (1). Their task-withdrawing emotions were connected to the nature of text-chat, where learners needed to wait a while for their partners' replies. For example, S44 said:

The most irritating moment was when I was waiting for my friend's reply. I was very anxious when my friend was typing a short paragraph because I was unsure whether she was addressing my question or if she was off task.

The long waiting time for a reply also caused trouble for S25 and S26, who felt confused after receiving their partner's reply. The reply could have been related to a point they had raised earlier, but they had already moved on to other points. Therefore, they needed to rearrange the turns to determine the logic. Moreover, S32 reported that she could not express her thoughts thoroughly with the text-chat function, which made the tasks more challenging. Furthermore, S33 worried about spelling, as she could not judge whether she understood the information based on her partner's facial expressions.

Discussion

This study examined ESL learners' engagement in three types of interactive tasks using video chat and text chat. The findings highlighted differences in learner engagement in the three tasks and the two communication modes. These findings add new empirical evidence to task engagement research.

Learner engagement and task types

The findings indicated that in both video chat and text chat, the learners were more behaviourally engaged in the descriptive task than in the decision-making task. Forty-two expressed positive emotions in the descriptive task, while only 17 did so in the decision-making task. One possible explanation is the different task complexity degrees. No reasoning demand was required in the descriptive task, but the learners needed to provide reasons for their picture sequencing and course selection. They found the descriptive task less demanding and thus were more engaged. This observation aligns with Baralt et al.'s (2016) study, which found that L2 learners expressed more negative emotions in tasks requiring reasoning, as they were more cognitively demanding.

In addition, in the descriptive task, the learners had to detail their pictures and frequently check with their partners to identify the differences, leading to more turn-taking and words. Conversely, in the decision-making task, they simply summarised the course information and decided on the most appropriate one, resulting in fewer turns and words. The third factor could be the nature of the input materials. As reported in their interviews, the pictures used in the descriptive task were more appealing (Sun and Zhang 2020) and imposed a lighter cognitive load than the written texts in the decision-making task. Consequently, learners were more engaged in their speech production in the descriptive task. However, they had to process the course information before they could relay it to their partners, making the task less engaging. Despite the relevance of the decision-making task (Vo 2023), fewer par- ticipants reported positive emotions in this task than in the descriptive one, as it reminded them of a classroom setting.

Furthermore, text-chat participants were more behaviourally engaged in the narrative task than in the decision-making task. This could be because the narrative task required detailed descriptions of the pictures, and encouraged frequent interactions, turn-taking, and longer utterances. However, the participants tended to summarise the course information and exchange key information in the decision-making task. This difference was not observed in the video-chat group. Unlike the text-chat learners who relied solely on text for communication, video-chat participants used their gestures and facial expressions to describe the pictures in the narrative task. This might have reduced the frequency of turn-taking and led to fewer words, resulting in similar turns and words in both tasks.

Despite the prevalence of negative emotions, the decision-making task was the most cognitively engaging of the three tasks. Both video-chat and text-chat students uttered the most elaborative clauses in this task. Compared to the descriptive and narrative tasks, the decision-making task required a higher degree of reasoning, as the learners had to explain the reasons behind their choices. This reasoning demand may have encouraged more elaborative clauses, thus engaging learners cognitively in task performance (Qiu 2022). This task also elicited the most affiliative back- channels among the text-chat participants, aligning with the findings of Garcia-Ponce and Tavakoli's (2022) study. This might be due to the higher degree of learner autonomy in selecting key course information, projecting personal stances and reasons, and echoing partners' viewpoints. However, no significant differences were observed in social engagement among the three tasks in video chat. We speculate that this might not be related to task types, but to communication modes. Therefore, discussions are included in the following section.

Learner engagement and communication modes

Regarding learner engagement in the two communication modes, the video-chat learners seemed more engaged than their text-chat peers. Specifically, the video-chat participants were more behaviourally, cognitively, and socially engaged in the descriptive task than the text-chat group. They were also more behaviourally and socially engaged in the narrative task and more behaviourally engaged in the decision-making task than the text-chat participants. Furthermore, the text-chat learners seemed less emotionally engaged than the video-chat learners. These findings align with existing studies (Aubrey 2022; Dao et al. 2021), which found that L2 learners were more cognitively, socially, and emotionally engaged in video chat than in text chat. However, S23 mentioned the possibility of cognitive overload in video chat because of the speed of information exchange and the requirement of processing audio and visual input in real time. The video-chat learners' engagement may have been influenced by their familiarity with the communication mode and having experienced online learning for three years during the pandemic (Qiu and Bui 2022b). The visibility of their partners may create a 'social presence' (Aubrey 2022: 77) that provides more linguistic

(verbal) and extralinguistic (visual) information to facilitate their communication and establish the feeling of sociability (Aubrey 2022; Dao et al. 2021). Although three text-chat participants attributed their positive emotions to having sufficient time for content and language generation (Cote and Gaffney 2021), 16 participants experienced negative emotions due to the time and energy required to interact with partners through typing, echoing Dao et al.'s (2021) findings. The text-chat learners were more outcome-oriented and included only concise information to avoid keeping their partners waiting, which may have resulted in fewer turns and words. Since their English proficiency was not advanced according to the C-test results, they needed more time to type their speech in the chat box. The long waiting time for responses hindered smooth turn-taking and were disengaging. Since the text-chat participants could not see their partners, they may have struggled to identify whether their partners needed social support, resulting in few affiliative backchannels. However, given that the text-chat and video-chat groups' speaking proficiency was not specifically measured and compared in this study and only their general English proficiency was gauged, caution is advised when considering the potential influence of their speaking proficiency on the findings.

The lack of difference in cognitive engagement in the narrative and decision- making tasks could be due to the high cognitive demand of both tasks, which require logical thinking and reasoning. The narrative task required learners to understand the contents of each picture before determining the sequence, necessitating confirmation of their understanding of the pictures with their partners and an explanation of their sequencing choices. Similarly, the decision-making task had a high reasoning demand, leading learners to frequently explain their choices regardless of their communication modes. Participants from both groups had similar occurrences of backchannels in the decision-making task. Due to learner autonomy, both groups frequently provided support to partners and the backchannel frequencies did not significantly differ.

Conclusion

This study examined Hong Kong ESL learners' engagement in three types of tasks carried out over video chat and text chat. The findings suggest that although the decision-making task was the least engaging behaviourally and fewer participants experienced positive emotions in this task, it did cognitively engage both groups of learners and socially engage the text-chat participants. Furthermore, video chat appeared to more effectively engage learners in task performance than text chat.

This study's findings provide further empirical support for task-based research, examining the effects of task type, communication mode, and task engagement, and underscore the complex nature of task engagement, where task factors (e.g., task type, communication mode) can have varying levels of influence on different engagement dimensions. The findings also shed light on online L2 teaching and learning, offering empirical evidence that L2 learners may engage in the three types of tasks differently. Descriptive tasks with colourful pictures depicting familiar scenes in SCMC modes can be behaviourally and emotionally engaging for L2 learners and thus are recommended. Narrative tasks might be more engaging when implemented in video chat, as learners may find it easier to describe the picture details in videoconferencing and may not tire from typing. Decision-making tasks are cognitively and socially engaging due to its reasoning demand and learner autonomy (Garcia-Ponce and Tavakoli 2022). Based on interview data, the participants also highlighted certain features of an engaging interactive task, including learner autonomy (Garcia-Paonce and Tavakoli 2022), the use of picture prompts as the input materials (Sun and Zhang 2020), and achievable cognitive complexity levels (Qiu 2022). These features may need to be considered during task design.

Future research may explore how these three types of tasks can be implemented in actual online classes and include learners with different age groups and L2 proficiency levels. Our results indicate that the differences between the three tasks might be related to the cognitive loads associated with their input modalities (i.e. pictures versus written texts). Therefore, explorations into the effects of different input modalities or multimodal input materials on L2 learner engagement in interactive tasks are also needed.

This study has several limitations. For instance, our sample size was relatively small (N = 48), partly due to the exploratory nature of this study. Additionally, all participants were from Hong Kong institutions, which may limit the generalisability of the findings. Caution is also advised when interpreting the findings because our learners participated in this study at home without the monitoring of the researchers. Even though we instructed them not to refer to other source materials during task performance, we cannot be certain they adhered to these instructions. This limitation can be resolved in future research conducted in a laboratory setting. Furthermore, the C-test used in this

study aimed at measuring the participants' L2 general proficiency, but did not provide insights into their ability to interact via text chat or video chat. Future studies could consider adopting a test measuring the learners' productive skills.

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