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Department of English Studies, Faculty of Pedagogy and Fine Arts, Adam Mickiewicz University, Kalisz
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Second language learner engagement in computer-mediated interactive oral tasks

Xuyan Qiu ✉
The Hong Kong Polytechnic University, Hong Kong SAR, China
https://orcid.org/0000-0003-4368-8039
xuyan.qiu@polyu.edu.hk

Yuen Yi Lo
The University of Hong Kong, Hong Kong SAR, China
https://orcid.org/0000-0002-0850-5447
yuenyilo@hku.hk

Haoyan Ge
Hong Kong Metropolitan University, Hong Kong SAR, China
https://orcid.org/0000-0002-3120-1468
hge@hkmu.edu.hk

Gavin Bui
The Hang Seng University of Hong Kong, Hong Kong SAR, China
https://orcid.org/0000-0002-1567-9074
gavinbui@hsu.edu.hk

Abstract

This study investigated the engagement of 60 Hong Kong English-as-a-second-language (ESL) learners in two types of tasks, each with two levels of complexity (-elements/simple versus +elements/complex). The learners formed self-initiated pairs and completed two descriptive tasks (-reasoning demand) and two narrative tasks (+reasoning demand) in a counterbalanced order in synchronous video-based computer-mediated communication (SvCMC) across

two separate meetings. Immediately after each task performance, the learners were interviewed about their emotional experiences during the tasks. Quantitative analysis of their spoken discourse revealed that learners were more cognitively engaged in the simple descriptive task than in the complex one. However, the number of elements did not seem to affect learner engagement in the narrative tasks. Descriptive tasks engaged learners behaviorally in task performance, while narrative tasks encouraged social engagement. The participants generally found both types of tasks emotionally engaging, but more participants experienced positive emotions during the descriptive tasks than during the narrative tasks. These findings suggest that task complexity and task type should be carefully considered when designing interactive oral tasks in online teaching and learning contexts.

Keywords: computer-mediated communication; second language learner engagement; interactive oral tasks; task complexity; task type

1. Introduction

Engagement, defined as learners' involvement in a learning activity (Christenson et al., 2012) and their action within the learning process (Skinner & Pizer, 2012), has garnered significant attention in general education (Fredricks et al., 2019). However, only recently have second language (L2) researchers begun to explore the definition and operationalization of learner engagement in L2 learning (Egbert, 2020; Hiver et al., 2021). This emerging interest is driven by the positive correlation between learner engagement and successful L2 learning outcomes (Mercer, 2019), especially in technology-enhanced contexts (Henry & Lamb, 2020). Learner engagement is embedded in various pedagogical paradigms and practices (e.g., task-based language teaching, collaborative writing), operationalized through different models (e.g., Philp & Duchesne, 2016; Svalberg, 2018) and measured using diverse methods, such as questionnaires, observations, and the idiodynamic method (Lambert et al., 2023). Thus, it is highly context-specific and multidimensional, necessitating further investigation (Philp & Duchesne, 2016). While substantial evidence exists regarding learner engagement in collaborative writing (Storch, 2008) and written corrective feedback (Han & Hyland, 2015), there is limited understanding of how different types of oral tasks engage learners. Given the relatively nascent exploration of task engagement, practitioners may need more suggestions supported by empirical evidence to engage learners in class.

In this study, we explore L2 learner engagement at the activity level within the framework of task-based language teaching (TBLT). Oral tasks, defined as meaning-based language-use activities derived from authentic communication scenarios, such as booking a hotel room (Ellis, 2003), are considered more engaging

than other speaking activities due to their interactiveness and authenticity (Long, 2014). Recent studies have revealed that specific task factors, such as learner choice and task preference, can significantly influence learner engagement levels (Lambert & Zhang, 2019; Phung, 2017). Given the variety of task factors, further research is needed to provide guidance on how teachers can design appropriate tasks to engage their students, especially in online teaching environments. Previous studies (Carver et al., 2021; Qiu & Bui, 2022) have examined the effects of task factors (e.g., reasoning demand, pre-task planning) on learner engagement in both face-to-face (FTF) and computer-mediated communication (CMC). These studies suggest that the impact of task factors varies across different communication modes, indicating that findings from FTF contexts may not be directly applicable to CMC. While emerging studies have begun to address the effects of task type and task complexity on engagement (e.g., Garcia-Ponce & Tavakoli, 2022; Jackson, 2025), most of these studies have been conducted in FTF contexts and studies focusing on CMC are needed.

To address this gap, this study investigates the effects of a task complexity factor, number of elements, on the engagement of Hong Kong English-as-a-second-language (ESL) learners in two types of interactive oral tasks (descriptive tasks without reasoning demand and narrative tasks with reasoning demand) via synchronous video-based computer-mediated communication (SvCMC). Here, SvCMC, or video chat, refers to videoconferencing where learners synchronously interact online using a camera and a microphone (Aubrey & Philpott, 2023). The research questions guiding this study are:

1. What are the effects of the number of elements on ESL learners' engagement across two types of interactive oral tasks (descriptive tasks and narrative tasks) in the SvCMC mode?
2. How do learners engage in descriptive tasks and narrative tasks?

2. Literature review

This section reviews and discusses relevant literature on task engagement models, as well as empirical studies about task complexity, task type, and CMC. It aims to explain the theoretical frameworks and rationale for this study.

2.1. Task engagement in computer-mediated communication

Recent discussions on task design and implementation focus not only on improving structural and lexical complexity, accuracy, and fluency of oral performance

(e.g., Baralt, 2013; Pang & Skehan, 2021) but also on enhancing learner engagement (e.g., Aubrey & Philpott, 2023; Lambert & Zhang, 2019). Learner engagement has been found to facilitate L2 learning and improve outcomes (Mercer, 2019). Therefore, it is ideal to identify task factors that positively affect oral production and significantly engage learners. With increasing attention to task engagement, frameworks from existing studies in educational psychology and second language acquisition have been adapted to explain how task engagement manifests (e.g., Lambert & Zhang, 2019; Philp & Duchesne, 2016; Svalberg, 2018; Torres & Yanguas, 2021). There is no one agreed-upon definition of this construct. Among these models, Philp and Duchesne's (2016) task engagement framework serves as the basis for this study. It is grounded in motivational and engagement theories from educational psychology and general education, depicts the multidimensional and context-specific nature of task engagement at the activity level, and is widely cited in task engagement research (e.g., Leeming, 2024; Nakamura et al., 2021). Philp and Duchesne (2016) define engagement as L2 learners' interest and participation in a task, encompassing four dimensions. The behavioral dimension pertains to learners' participation, often assessed by metrics such as number of words uttered (Bygate & Samuda, 2009) and time spent on task (Fredricks et al., 2004). Cognitive engagement indicates the mental effort learners invest in tasks (Helme & Clarke, 2001), such as their elaborations on and exemplifications of their arguments (Lambert et al., 2017) and language-related episodes (LRE), which entail talking about the language produced by the speaker and their interlocutor (Baralt et al., 2016; Swain & Lapkin, 2002). Their positive emotions or affective responses during task performance, such as enjoyment, reflect emotional engagement (Reeve, 2012; Skinner et al., 2009), whereas negative or task-withdrawing emotions, such as boredom, indicate their disengagement. Social engagement is unique for peer interaction contexts and emphasizes social support and interactiveness, which is often measured by affiliative backchannels (e.g., acknowledgement, expressions of sympathy and surprise, enthusiastic repetitions) (Aubrey & Philpott, 2023).

Previous research on tasks adopted Philp and Duchesne's (2016) framework and focused on task engagement in FTF contexts (e.g., Dao, 2021; Garcia-Ponce & Tavakoli, 2022), but an emergent body of research has investigated tasks conducted in CMC, partly as a result of the COVID-19 pandemic (Aubrey & Philpott, 2023; Qiu, 2024). These empirical studies have reported that communication modes, such as CMC, influence task engagement due to their varying affordances (Carver et al., 2021). For example, Lenkaitis (2020) found that the videoconferencing feature of Zoom (SvCMC) effectively enhanced learner autonomy and proficiency among L2 Spanish learners by providing opportunities for spontaneous peer conversation outside the classroom and connecting learners from different

physical locations. Despite its cost-effectiveness and convenience, SvCMC falls short compared to FTF interactions in capturing paralinguistic cues (e.g., gestures). Although video chat platforms, such as Zoom, allow for video to be enabled, the limited size of the video window can restrict the full capture of speakers' gestures and paralinguistic cues. Consequently, video chat may not convey as many nonverbal signals as face-to-face communication, which may reduce social presence of interlocutors and negatively impact learner engagement (Aubrey & Philpott, 2023; Qiu, 2024). To improve engagement in SvCMC, designing tasks with engaging features, such as appropriate task types and difficulty levels, is recommended (Soongpankhao et al., 2023; Young & Son, 2023). For instance, Young and Son (2023) found that, compared to dictogloss tasks, problem-solving tasks may be more helpful to engage EFL learners in discussion, promote uptake, and improve their oral proficiency in SvCMC than in FTF because lacking nonverbal cues made them more focused on the complex process of problem solving. Consequently, research on the impact of task design factors on learner engagement can provide suggestions to teachers on how to design tasks to engage learners in online learning environments.

2.2. Number of elements and learner engagement

The manipulation of the cognitive complexity level of tasks, known as task complexity, is one way of engaging learners in task performance, as complex tasks require more mental effort and may foster greater behavioral and cognitive engagement (Jackson, 2025). Task complexity is grounded in the cognition hypothesis (Robinson, 2011), one of the fundamental task-based performance theories. According to Robinson (2011), task design factors (e.g., +/-planning time, +/-few elements) affect the cognitive demands of tasks and increasing task complexity pushes learners to produce more accurate and complex speech to fulfill communication needs but fluency may be compromised. The inclusion of more/fewer elements is a resource-directing variable that promotes learners' attention to linguistic forms needed to communicate complex content, and more elements impose extra cognitive demands and increase task complexity. Robinson (2011) suggests sequencing tasks from less demanding to more complex ones. Most empirical studies (see Jackson & Suethanapornkul, 2013; Johnson & Abdi Tabari, 2022, for reviews; Sasayama, 2016; Zalbidea, 2017) based on the theory have focused on the effects of task complexity, specifically +/-few elements, on oral production in both FTF and CMC modes, but confusion also exists regarding how to operationalize task elements.

Existing studies operationalize task elements from different perspectives, such as the number of pictures in picture narration tasks (Nuevo, 2006), the number

of characters within the same number of pictures (Sasayama, 2016), with/without goal tracking (Soongpankhaoe et al., 2023), and the number of selection criteria required during the decision-making process (Qian & Shamsudin, 2023). Sasayama (2016) found that learners' perceived task complexity of +/-few elements may not necessarily align with the researcher's hypothesized complexity, and significant differences in cognitive load were only found between the least complex story narration task (with one character) and the most complex one (with nine characters). The cognitive load of tasks with two and four characters did not significantly differ. Therefore, Sasayama (2016) recommends consideration of learners' perceptions of tasks during the design process and careful operationalization of task elements.

Drawing from the current literature, this study operationalizes +/-few elements as "the number of task-specific items a speaker has dealt with simultaneously during task performance (be it characters, events, or places in a narrative or the number of choices to be taken into consideration when making a decision)" (Levkina & Gilabert, 2012, p. 177). This is investigated because, compared with the fruitful evidence of the influence of the number of elements on L2 oral production, less is known regarding how this factor affects L2 learners' engagement. Kim (2009) included more elements in the pictures of the complex picture difference task than in the simple one, resulting in more LREs and higher cognitive engagement. However, Kim's (2009) study was conducted in face-to-face communication contexts and only LREs were used to measure engagement; thus it remains unknown how the number of elements affects different dimensions of learner engagement in CMC or SvCMC. The only relevant study was conducted by Soongpankhao et al. (2023), who operationalized task elements in another way (with and without goal-tracking) and examined their impact on Thai EFL learners' task engagement in an online TBLT program, focusing on behavioral (words and turns produced), cognitive (negotiation of meaning), and social (backchanneling) engagement in spoken discourse. Similarly, the complex task led to enhanced cognitive engagement. However, behavioral and emotional engagement was not affected. These findings indicate that +/- few elements may affect learner engagement, but considering the different operationalizations of elements and multidimensional nature of the construct, the findings are inconclusive. More research is needed to explore how learners engage in tasks with more and fewer elements in SvCMC.

2.3. Task complexity and task type

Researchers need to exercise caution when generalizing task element effects on L2 production or engagement as it may be mediated by other task factors, such

as task type (Gilabert et al., 2011; Khatib & Farahanynia, 2020; Kim, 2009). Task type can be interpreted taking into account different aspects, such as convergent or divergent goal orientation (Dao, 2021), monologic or dialogic mode (Tavakoli, 2016), and focused or unfocused linguistic forms (Ellis, 2003). In this study, we investigate two types of tasks widely adopted in task-based research (e.g., Foster & Skehan, 1996; Garcia-Ponce & Tavakoli, 2022; Kim, 2009; Révész et al., 2016): descriptive tasks and narrative tasks. Descriptive tasks require learners to describe a picture different from that of their partners' and to spot the differences between the two pictures. In narrative tasks, learners work in pairs to exchange information about their own pictures and sequence them into a complete story. In both types of tasks, picture description and information exchange are needed. However, compared to simply spotting the differences between two pictures in descriptive tasks, learners are required to describe and sequence the pictures, explain their reasons for picture sequence (causal reasoning), and reach an agreement (intentional reasoning) in narrative tasks. In other words, narrative tasks place higher reasoning demands compared to descriptive tasks (Kim, 2009) and are assumed to be more complex.

The mediational role of task type in task complexity has been reported in some studies on L2 oral production (e.g., Gilabert et al., 2011), but relatively few have focused on learner engagement. Kim (2009) found that lower proficiency learners produced and resolved more LREs in a simple narrative task with fewer picture prompts than in a complex one. This was possibly because the simpler task allowed them to allocate more attention to their interlocutor's speech and provide more feedback. However, contrasting results were found among higher proficiency learners. For descriptive tasks, higher achievers engaged similarly in both simple and complex tasks, while lower achievers were more engaged in the complex task, likely due to the need for attentiveness in spotting differences. Kim's (2009) findings suggest that task types mediate the number of elements and learner engagement, but her study primarily focused on cognitive engagement relating to language issues, neglecting content-related discussions, emotional experiences, and social support during peer interaction. More recently, Garcia-Ponce and Tavakoli (2022) compared learner engagement in narrative tasks with fixed picture sequence (no reasoning demand) and decision-making tasks (with reasoning demand). They found that reasoning demands encouraged learners to produce more turns (behavioral engagement) due to the autonomy in making choices and presenting reasons. While these studies highlight the potential mediational role of task type in task complexity and learner engagement, they were conducted in FTF contexts, limiting their applicability to SvCMC.

Recent research on reasoning demand and learner engagement has considered the mediating effects of communication modes. For example, Baralt et

al. (2016) analyzed LREs of 40 L2 Spanish learners' task performance in FTF real-time communication and synchronous text chat, along with their questionnaire responses. They found that FTF participants were more cognitively, emotionally and socially engaged in the more complex task (with intentional reasoning demand) than in the less complex one (without reasoning demand). However, the text-chat group did not engage in either task due to a lack of interaction and social support. In contrast, in Qiu's (2024) study on 64 Chinese ESL learners' engagement in three interactive oral tasks of varying complexity levels (operationalized as +/-pre-task planning and +/-intentional reasoning) in SvCMC, increasing intentional reasoning demand led to more frequent clarifications on content (cognitive engagement) as well as greater emotional engagement (interview data). The different findings reinforce that communication modes may mediate learner engagement in different complexity conditions and imply that reasoning demands may be more effective in engaging learners in SvCMC than in text chat. Since research has demonstrated that task complexity factors appear to have a differential impact in SvCMC than in FTF and text chat, more research exploring task complexity and engagement in CMC is needed. To better understand how to manipulate reasoning demands in SvCMC, this study takes task type into consideration and investigates how learners engage in tasks varying in the number of elements and reasoning demands.

3. Methods

The main goal of this study is to explore Hong Kong ESL learners' engagement in interactive oral tasks in synchronous video-based computer-mediated communication. Specifically, it aims to investigate the effects of two independent variables – number of elements (operationalized as more elements and fewer elements) and task type (i.e., descriptive and narrative tasks, operationalized by with[out] reasoning demand) – on the behavioral, cognitive, emotional and social engagement of learners (dependent variable). The details of the research design are presented below.

3.1. Participants

60 undergraduate students from a university in Hong Kong (mean age: 20 years old, standard deviation: 1.42) who spoke Chinese as their first language and English as their second language voluntarily participated in this study. Ten of them were male, and the rest were female. They had been learning English for more

than six years by the time of the data collection and were intermediate-level English learners based on the results of their C-test (Qiu, 2020), which gauges their general English level, with a mean accuracy of 56.25% (standard deviation: 15.18). The students were from different disciplines at the target university, including arts and social sciences (*N* = 6), education (*N* = 29), business and administration (*N* = 14), science and technology (*N* = 9), and nursing and health studies (*N* = 2). By the time of data collection, these learners had been attending English proficiency courses on Zoom with the videoconferencing function for more than one year and thus were familiar with SvCMC. They performed similar types of tasks during their prior English learning experience and thus had task familiarity.

3.2. Research instruments

3.2.1. Interactive oral tasks

Two types of tasks (descriptive versus narrative) were designed for this study, and each task type had a complex version (more elements) and a simple version (fewer elements) (see Table 1 for details). Each participant performed all the four tasks in a counterbalanced order. In the descriptive tasks, the learners worked in dyads, and each was given a picture of a scene in Hong Kong. Their pictures had some differences (five differences for the simple version and 10 for the complex version), and they needed to describe their pictures to each other and spot the differences. In the narrative tasks, the dyads worked together to figure out a storyline of six/nine pictures. In the simple task, each learner was given three pictures different from their partner's, and they exchanged the contents of the pictures, sequenced the pictures and narrated a complete story together. The complex task was performed with the same requirements, but one learner was given four pictures and their partner had five pictures. The instructions for the tasks can be found in Appendix A.

Table 1 The list of tasks

Task type/complexity	Simple (fewer elements)	Complex (more elements)
Descriptive	Five differences	Ten differences
Narrative	Six pictures	Nine pictures

3.2.2. Semi-structured interviews

Immediately after task completion, the participants were interviewed about their emotional engagement in each task (Lambert & Zhang, 2019; Qiu et al., 2024).

Given that the learners performed four tasks in two meetings, they were interviewed after each task. The interviews were semi-structured and conducted in their first language (Chinese) by the first author. In the interviews, each participant was asked about their emotional experiences during each task and compared their emotional engagement in tasks of different types and different complexity levels. The length of each interview, on average, was 20 minutes for each participant. The interviews were videotaped by Zoom. The interview protocol is presented in Appendix B.

3.3. Data collection procedure

Before data collection, emails and posters were sent to undergraduate students at the target university. The learners paired up with their university friends and voluntarily signed up for the study. They worked with the same partner throughout all four tasks. The participants were told about the study, and their consent was sought before data collection. To avoid fatigue, the participants performed the tasks in two meetings at a one-week interval (see Figure 1). They performed the two simple tasks or the complex tasks on Zoom during each meeting. To avoid the potential influence of the practice effect, the dyads completed the tasks in a counterbalanced order.[1] The learners were asked to stay home and turn on their cameras and microphones during the study. Before each task, the participants were given three minutes to plan. They could write down some notes on any aspect of their speech production on a blank word file. They were not allowed to talk to each other or refer to other source materials. After planning, the dyads began their task performance by chatting with each other. They could only use video chat but could not type anything in the chat box. There was no time limit for each task, and the participants could stop when they completed the tasks. Immediately after they had completed each task, they were briefed on the concept of emotional engagement and asked to describe their emotions during the task individually. At the end of each meeting, they also compared their emotions in different tasks and further elaborated on the reasons. Their task performance and interviews were videotaped via Zoom.

[1] The tasks were performed in two separate meetings in a counterbalanced order. Half of the participants performed the narrative tasks before the descriptive tasks, and the rest performed the descriptive tasks before the narrative tasks. Half of the participants began with the simple tasks, while the rest performed the complex tasks first. Task performance involved four sequence types: (1) simple descriptive → simple narrative → complex descriptive → complex narrative (*N* = 16), (2) simple narrative → simple descriptive → complex narrative → complex descriptive (*N* = 16), (3) complex descriptive → complex narrative → simple descriptive → simple narrative (*N* = 14), (4) complex narrative → complex descriptive → simple narrative → simple descriptive (*N* = 14).

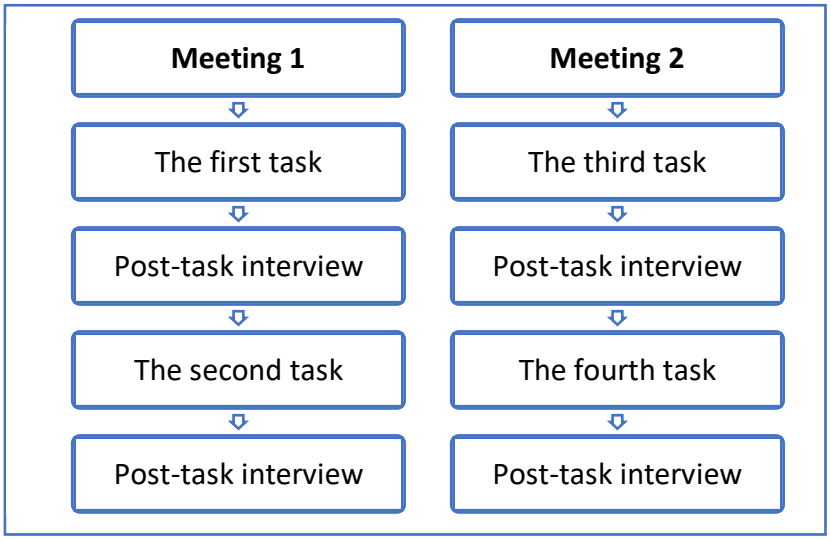

Figure 1 Data collection procedure

3.4. Data analysis

The spoken discourse of task performance and interview data were collected. The spoken discourse was first transcribed using the website iflyrec[2] and then manually checked by three research assistants. A trimmed form of the transcripts was produced, excluding filled pauses, false starts, repetitions and incomplete words. The transcripts were then analyzed by the first author in terms of behavioral, cognitive and social engagement. Two indicators – words per minute and turns per minute – were adopted to measure behavioral engagement (Bygate & Samuda, 2009; Fredricks et al., 2004). Cognitive engagement was measured using three indices. The number of elaborative clauses per 100 words was adopted in previous studies to capture the average frequency of clauses "which serve to expand on semantic content with additional elaborations including details, reasons, suggestions, propositions and opinions" (Lambert & Zhang, 2019, p. 393). The average number of moves aimed at clarifying content (e.g., confirmation check, clarification request) and the average number of moves aimed at clarifying language per 100 words (similar to LREs) were also calculated (Nakamura et al., 2021). For social engagement, the average number of affiliative backchannels per 100 words was analyzed. Affiliative backchannels refer to "moves on the part of the listener which go beyond acknowledgement

[2] https://www.iflyrec.com/

of comprehension to provide support or encouragement to the speaker, express sympathy, or express surprise" (Lambert & Zhang, 2019, p. 394). These measures have been adopted in task engagement research in not only FTF but also SvCMC contexts (e.g., Aubrey & Philpott, 2023; Soongpankhao et al., 2023). Examples are given in Appendix C to illustrate how the discourse was coded.

To ensure the accuracy of the analysis, a research assistant was invited to analyze 10% of the transcripts (six participants), and the results were compared with the first author's analysis using Pearson's correlation analysis in SPSS. The analysis indicated strong correlations between the two sets of results ($p < .001$, $r > .80$). The disagreements were resolved until 100% agreement was reached. The data sets were input into SPSS version 29 for quantitative analysis. Since the data sets for words per minute and turns per minute are normally distributed, we used repeated measures ANOVA tests to explore the main effects of number of elements and task type and their interaction effects (if any). The normality requirements were not met for other data sets, and thus non-parametric tests (Wilcoxon signed ranks tests) were used. In this case, Bonferroni corrections were conducted and the alpha was adjusted to .0125.

Table 2 Learners' emotions

Task-facilitating emotions	happy, confident, fun, excited, engaged, relaxed, interested, motivated, calm, curious, enjoyable, hilarious
Task-withdrawing emotions	nervous, confused, hasty, embarrassed, disappointed, worried, surprised, not engaged, insecure, struggling, stressed, helpless, messy, impatient, tired, puzzle

The interviews were also transcribed verbatim using iflyrec and then double-checked by a research assistant to ensure accuracy. Content analysis (Neuendorf, 2019) was conducted to compare the learners' emotional engagement in different tasks. Similar to previous studies (Qiu, 2024; Qiu et al., 2024), we also relied on Skinner et al.'s (2009) and Reeve's (2012) categorization of task-facilitating or positive emotions (e.g., happiness) and task-withdrawing or negative emotions (e.g., anxiety) when analyzing the interview data. We first highlighted all keywords relating to the participants' task emotions in the transcripts and categorized the keywords and relevant explanations for their emotional experiences into task-facilitating or task-withdrawing emotions. Emotions related to each task were compared to explore how learners engaged in tasks of different element numbers and different types. The number of participants who mentioned each specific emotion during their interviews was counted. Table 2 lists all the adjectives describing emotions identified in the dataset. The data were coded by the first author and then checked by the fourth author. Three differences were found between the coding of the two authors. The differences were then discussed and resolved in a follow-up meeting. The findings are presented in the following section.

4. Findings

Quantitative results based on the analysis of spoken discourse and qualitative findings of the interview data on learner engagement in simple and complex tasks and the two task types will be reported in the following sections.

4.1. Results of the spoken discourse

The quantitative results are presented following the two research questions and can be divided into two parts: (1) effects of the number of elements on learner engagement across the two task types and (2) learner engagement in the two task types.

4.1.1. Effects of the number of elements on engagement in the two types of tasks

Table 3 describes the means and standard deviations (in brackets) of the different indices of the different tasks. The results of parametric tests did not reveal any significant differences between the simple and complex tasks ($p > .05$) in words and turns per minute, indicating that the number of elements did not significantly affect behavioral engagement. For the non-parametric tests, significant differences were found in language-related clarifications between the simple descriptive task and the complex one ($Z = -2.618$, $p < .01$, $d = .31$), suggesting that the simple descriptive task better cognitively engaged learners in discussing language-related issues. However, no significant differences were found between the two narrative tasks ($p > .05$). Neither were significant differences found in other cognitive and social engagement indicators ($p > .05$).

Table 3 Descriptive statistics

Measures		Descriptive		Narrative	
		Simple	Complex	Simple	Complex
Behavioral	Words per minute	82.58 (19.81)	84.49 (26.36)	84.02 (21.05)	83.63 (21.13)
	Turns per minute	10.87 (4.82)	10.54 (4.83)	7.19 (4.18)	6.32 (3.53)
Cognitive	Elaborative clauses	0.14 (0.33)	0.20 (0.39)	0.19 (0.56)	0.31 (0.66)
	Content clarification	0.10 (0.24)	0.90 (0.21)	0.08 (0.18)	0.11 (0.24)
	Language clarification	0.33 (0.62)	0.17 (0.40)	0.03 (0.17)	0.11 (0.54)
Social	Backchannel	0.12 (0.29)	0.10 (0.23)	0.56 (0.85)	0.55 (0.94)

4.1.2. Effects of task type

The results of the parametric tests also revealed that task type significantly affected learner engagement in turns per minute ($F = 93.683$, $p < .001$, partial eta

squared = .614). Follow-up pairwise comparisons, or paired samples *t*-tests with Bonferroni adjustments, suggested that more turns were produced in the two descriptive tasks than in the two narrative ones (Simple: $t = 9.206$, $p < .001$, $d = .82$; Complex: $t = 7.541$, $p < .001$, $d = 1.23$). However, no significant differences were found in words per minute ($p > .05$) between the two task types. Significant differences were also found in clarifications on language-related issues between the simple descriptive task and the simple narrative one, with more discussions in the descriptive task ($Z = -3.700$, $p < .001$, $d = .66$). No significant differences were found in language-related clarifications between the two complex tasks. The participants also produced a similar number of EC and had similar frequencies of content-related negotiations in the two task types ($p > .05$). Nonetheless, the learners were found to have more affiliative backchannels in the simple narrative task than in the simple descriptive one ($Z = -4.020$, $p < .001$, $d = .69$) and also in the complex narrative task than in the complex descriptive one ($Z = -3.995$, $p < .001$, $d = .66$).

In summary, the participants seemed to be more cognitively engaged in the simple descriptive task than in the complex descriptive task, but the number of elements did not affect learner engagement in the two narrative tasks. Regarding the task type effects, the participants were more behaviorally engaged in the descriptive tasks (without reasoning demand) than in the narrative tasks (with reasoning demand). As for cognitive engagement, they were also more engaged in the simple descriptive task than in the simple narrative one. However, they were more socially engaged in the narrative tasks than in the descriptive ones.

4.2. Interview findings

The interview findings, which reveal the participants' emotional engagement when performing the tasks, are presented according to the research questions.

4.2.1. Number of elements and emotional engagement

When asked to compare their emotional engagement in the simple tasks with that in the complex tasks, 15 out of the 60 participants (25%) felt more emotionally engaged in the simple tasks than in the complex tasks, while five (8%) were more engaged in the complex tasks. Nine participants (15%) held mixed viewpoints, which indicated a potential interaction between task complexity and task type. Therefore, the findings will be presented in the section on potential interaction effects. The rest ($N = 31$, 52%) did not perceive any obvious differences as they felt that they could complete all these tasks smoothly.

In the case of the 15 learners who better engaged in the simple tasks, the positive emotions included relaxation (8), happiness (3), engagement (3), confidence (1), enjoyment (2), excitement (1) and interest (1). These participants indicated that their positive emotions were due to the lighter cognitive load of the task elements (fewer elements in the pictures and fewer picture prompts), which allowed them to attend to their speech production. For example, S38[3] reported: "The task with more differences distracts me and I feel more enjoyable in the one with fewer differences and can focus more on my speech production."[4]

In comparison, S35 and S19 felt happier in the complex tasks than in the simple tasks. As S35 explained: "I had more to share. But in the simple ones, I did not know what to discuss because they were a bit too simple." S35's viewpoint was consistent with the explanations of S14, S21 and S37 about why the complex tasks were more emotionally engaging. Their positive emotions included relaxation (S14), fun (S37) and happiness (S21).

The impact of task elements on emotional engagement varied depending on different task types. Eight participants were more emotionally engaged in the simple narrative task and found it more relaxing, engaging, fun and less confusing than the complex narrative task. For example, S20 quickly figured out the plot of the story in the simple narrative task, which made her more relaxed compared with how she felt in the complex task. However, five participants agreed that the complex descriptive task was more engaging than the simple task (e.g., more engaged, less confused, happier, more relaxed and calmer) because "it was easier to spot the differences when there were more elements in the picture" (S10). In contrast, S16 and S33 felt more engaged and less confused in the complex narrative task than in the simple task, but they thought there was not much difference in their emotions between the two descriptive tasks. S33 explained why she was more engaged in the complex narrative task: "More pictures make the task more challenging. I feel more engaged."

4.2.2. Task type and emotional engagement

Thirty-five students (55%) favored the descriptive tasks, and only one (2%) disliked this task type. Seventeen (27%) preferred the narrative tasks, but nine (14%) reported negative attitudes. Three students (5%) found both task types similarly engaging.

Among the participants, 56 (93%) experienced positive emotions in the descriptive tasks. Among them, 46 (72%) found the tasks fun. The learners felt

[3] Participants were assigned numbers to ensure the anonymity of their identities, with S38 representing Student 38.

[4] The interview quotations were translated by the researchers.

relaxed (16), engaged (16), happy (10), excited (5), motivated (1) and calm (1). One major reason was that they only needed to find out differences without reasoning, which was like "playing games" (S3). For example, S20 said: "It's fun to practice my English when finding differences. It made me focused. I just need to find out the differences. The goal is very clear. The cognitive load is not so heavy." S8 was engaged in the task and explained: "It's like a game. It's very straightforward. I didn't need to sequence anything or think about the reasons." The lower cognitive load made them emotionally engaged in task performance. Another reason was that the learners preferred tasks with pictures and these pictures attracted their attention. For instance, S7 found the descriptive tasks fun: "The picture is attractive. There are no written words, which greatly reduces my cognitive load."

Despite their popularity, the descriptive tasks also triggered negative emotions from 19 participants (32%), including feeling confused (5), hasty (5), nervous (4), embarrassed (2), disappointed (1), worried (1) and surprised (1). Compared with their emotional experiences in narrative tasks, they also felt bored (2), unexcited (1) and less engaged (1). S13 felt confused because "both sides may not describe all the details, and I took it for granted that my partner's picture had the same elements." He mentioned that it was very challenging to describe the picture in great detail. He might have neglected some important elements. He might have also assumed that both pictures were taken in the daytime and his partner thought the two pictures were taken in the evening. They confused each other when describing the people and objects.

Positive emotions towards the narrative tasks were reported by 40 participants (67%), including fun (32), engagement (14), happiness (7), relaxation (8), excitement (2), motivation (2), confidence (2), curiosity (2) and enjoyment (1). This is due to the learners favoring the autonomy of sequencing the pictures. For example, S45 and S46 felt excited when performing the narrative tasks because they "had more freedom to decide on the logic of the story" and had to "imagine the content creatively." The requirement for sequencing pictures and explaining their reasons contributed to their emotional engagement. Furthermore, similar to the descriptive tasks, they liked the gamification nature of the tasks. S54 told the researcher that the tasks were similar to the storytelling games she played with her friends. She felt happy because guessing the content of her partner's pictures and sequencing the pictures were very interesting.

Nevertheless, 10 learners (17%) shared their negative feelings when performing the narrative tasks. They felt confused (13), unexcited (3), insecure (2), struggling (2), nervous (1), worried (1), surprised (1), impatient (1), tired (1), helpless (1), stressed (1), disengaged (1) and messy (1). Some dyads found the tasks challenging and sometimes could not understand each other, which led to negative emotions. Two pairs (S1 & S2 and S31 & S32) even failed to create a

complete story in the end. S31 and S32 encountered difficulties in interpreting the meaning of their pictures and connecting their pictures together, which confused them. Moreover, S7, S8 and S33 attributed their negative emotions to a "lack of creativity and imagination." S7 felt helpless because no matter how S8 described the pictures, she could not imagine what they were about.

5. Discussion

This study investigated the effects of the number of elements on Chinese ESL learners' engagement in task performance across descriptive tasks and narrative tasks in SvCMC and explored learner engagement in the two types of tasks. Whilst task complexity and task type effects on L2 learners' speaking performance have been much discussed in the literature (Robinson, 2011), less is known about how these factors influence L2 learner engagement in SvCMC. Therefore, the findings of this study contribute to the research field with novel evidence about L2 learner engagement in different interactive oral tasks in the SvCMC context.

5.1. Impact of the number of elements on engagement across two types of tasks

When it comes to the first research question, the non-parametric test results indicated that the number of elements influenced learners' cognitive engagement in descriptive tasks and the participants were more cognitively engaged in the simple task, contrasting with Kim's (2009) findings in the FTF context. Kim observed that lower proficiency EFL learners more frequently discussed language-related issues or LREs in tasks with more elements, while higher proficiency learners were similarly engaged in both the simple and complex descriptive tasks. One possible explanation, as suggested by the interview findings, is that, with fewer elements or a lower cognitive load, participants could allocate more attention to both their own and interlocutor's speech, thereby clarifying language-related issues or LREs. This is more essential in SvCMC than in FTF as learners needed to rely more on verbal exchanges to communicate their ideas in SvCMC and could not see each other's gestures very clearly. For the complex task with more elements, the participants might have been overwhelmed with the pictures and might not have been able to comment on language-related issues very frequently. This is particularly the case in SvCMC, where participants needed to attend simultaneously to the interface of pictures and their interlocutor's face on the computer screen (Qiu et al., 2024). When the task became complex, they might have found more difficult to allocate attention to language

issues. The shift of attention from picture to speech may have also triggered positive emotions among 15 learners who were more emotionally engaged in the simple tasks than in the complex ones. However, in the two narrative tasks, the participants had similar frequencies in negotiations on clarifying language-related issues or LREs. This could be because narrative tasks do not require learners to focus on every single element in the pictures, whereas descriptive tasks necessitate detailed descriptions and mutual understanding to identify differences (Kim, 2009).

Furthermore, 31 participants did not perceive any emotional differences between the simple and complex conditions. Although they recognized the varying cognitive demands of the tasks, they did not find them particularly challenging and completed them smoothly, possibly because of their intermediate to higher-intermediate English proficiency as measured by the C-test. The tasks were not particularly demanding for them. However, individual differences in emotional engagement were observed among the remaining participants, possibly due to their varying perceptions of the difficulty levels of +/-few elements. For instance, five participants found the descriptive task with more elements less demanding and were more engaged as it was easier for them to spot the differences. This perception was related to their perceived task difficulty, which might differ from researchers' assumptions of task complexity (Sasayama, 2016). Conversely, five participants were more emotionally engaged in the two complex tasks, and two were more engaged in the complex narrative task as increased task complexity better engaged them in task performance.

In addition, the number of elements did not significantly impact behavioral and social engagement across the two types of tasks (Soongpankhao et al., 2023). Despite differing complexity levels, the tasks were generally not very challenging. Therefore, the participants were able to sustain their attention and actively participate. Moreover, the familiarity between the interlocutors (or self-initiated pairing) and the social presence of the interlocutor in SvCMC (Aubrey, 2022; Dao et al., 2021; Qiu, 2024) likely created a supportive and friendly environment. This environment facilitated social engagement, allowing learners to provide sufficient social support for each other regardless of task complexity levels.

5.2. Task type and engagement

As for the second research question, the quantitative results imply that the participants were more behaviorally engaged in the descriptive tasks than in the narrative tasks. This is different from the findings in some existing studies (e.g., Garcia-Ponce & Tavakoli, 2022) where reasoning demands led to higher behavioral engagement. Descriptive tasks may require learners to be very responsive and attentive to confirm

whether each element described by the interlocutor is found in the speaker's picture, leading to frequent turn-taking. This was especially the case when the participants interacted with each other in SvCMC where gestures and other paralinguistic cues were somewhat limited. In comparison, in narrative tasks, the participants focused on the overall content and logic of the pictures and their reasoning for picture sequencing, which might demand less frequent turn-taking.

The participants were more cognitively engaged in the simple descriptive task than in the simple narrative one. This may be due to the release of cognitive load in the descriptive task without reasoning demand and increased attention to discussing and resolving language-related problems (Kim, 2009). However, no significant differences were found between the two complex tasks. In the complex conditions where the cognitive load was high, the learners were required to attend to the increasing task elements during speech production and might have needed to be very engaged to complete the tasks. Thus, there were no obvious differences in their cognitive engagement in the two complex tasks.

Interestingly, the participants were more socially engaged in the narrative tasks where reasoning demand was required. Collaborative story narration required speakers not only to describe their pictures but also link their pictures to their partner's, which is more cognitively demanding than the descriptive tasks. It was more likely for them to provide social support and encouragement to each other (Garcia-Ponce & Tavakoli, 2022; Qiu et al., 2024).

The majority of the participants were emotionally engaged in both types of tasks. More participants (N = 35) favored the descriptive tasks than the number of learners (N = 17) who expressed their preference for the narrative tasks. Most participants (N = 56) experienced positive emotions during the descriptive tasks because of the lighter cognitive demand, game-like feature, and use of pictures (Kim, 2009). On the other hand, those who experienced positive emotions during the narrative tasks, attributed their emotional engagement to the autonomy they obtained in deciding on the content of the story and illustrating their reasons. They also found the narrative tasks to be game-like and thus enjoyed them. Creative thinking abilities of learners, according to a few participants in the interview, seem to mediate their emotional engagement (McDonough et al., 2015). Some participants who engaged in the narrative tasks expressed that the tasks allowed them to think creatively. They may have been emotionally engaged in the narrative tasks as they were more focused on meaning than in the descriptive ones, which may have encouraged creativity and engagement. However, the few students who experienced negative emotions in the tasks mentioned that they lacked creativity to sequence the pictures into a complete story. Although we did not intend to connect creative thinking abilities with task engagement in the study design and acknowledge that this could be one limitation, the findings may suggest

a possible future research direction of considering learners' creative thinking abilities when discussing how narrative tasks engage them.

6. Conclusion and pedagogical implications

The findings of this study revealed that in SvCMC, L2 learners' task engagement could be influenced by the number of elements and task type. Learners more frequently clarified language-related issues in the simple descriptive task compared to the complex one. However, the influence on cognitive engagement was not significant in the two narrative tasks. Half of the learners did not perceive noticeable differences in their emotions between the simple and complex tasks, while the remaining participants experienced varying emotions, indicating individual differences. Regarding the effects of task type, participants were more behaviorally engaged in the descriptive tasks and cognitively engaged in the simple descriptive task, but they were more socially engaged in the narrative tasks. Emotionally, although participants generally found both types of tasks engaging, more participants experienced task-facilitating emotions during the descriptive tasks than during the narrative ones.

The findings of this study reinforce the necessity of considering the effects of task type (Kim, 2009) when designing and selecting tasks. For example, in descriptive tasks, learners held more discussions on language-related issues in the simple task than in the complex one. However, the impact of the number of elements on cognitive engagement was not significant in the narrative tasks. Also, learners produced more language-related episodes or LREs in the simple descriptive task than in the simple narrative one. These findings imply that if teachers intend to shift learners' attention to linguistic forms, simple descriptive tasks may be more useful. In addition, narrative tasks, which require learners to exchange their picture content, order the pictures, and explain their reasoning, may encourage learners to provide more social support and focus on meaning associated with the picture prompts and are thus recommended in L2 classrooms, especially in the SvCMC or online teaching contexts. The lack of social presence has been identified as a limitation of online teaching and learning (Lenkaitis, 2020). The selection of narrative tasks may promote social engagement and thus more effectively address this limitation. Furthermore, teachers may consider students' perceived task difficulty when deciding on which tasks can be engaging (Sasayama, 2016). Half of the learners in this study did not perceive obvious differences between tasks with more elements and those with fewer elements, so their emotional engagement did not noticeably differ. This finding suggests that learners' perceived task difficulty may not always align with researchers' and teachers' assumptions. Therefore, it is

recommended that students' perceptions be considered when exploring the dichotomy of simple and complex conditions.

Notwithstanding these implications, this study has some limitations. First, in the complex narrative task, one participant in each pair was given five pictures, while the other was given four pictures. The learners with more pictures might need to process more information than their partners. It would be better to provide the same number of pictures to each participant in the complex narrative task. In addition, the qualitative findings imply the potential influence of some learner factors, such as task preference and creative thinking abilities. We acknowledge that these factors were not well controlled in this study, and would suggest future studies explore the role of these learner factors in task engagement. Furthermore, emotional engagement was only captured by the participants' self-reports, which might not be objective enough. It would thus be beneficial to rely on multiple data sources (e.g., observation).

Despite these limitations, we believe that it is worthwhile to shift our attention to SvCMC and investigate the effects of task complexity and task type on L2 learner engagement to deepen our understanding of designing different interactive tasks in online teaching. Therefore, future studies are needed to explore learner engagement in different communication modes, including FTF, SvCMC, audio chat, text chat, and even virtual realities. Aside from task complexity, it is recommended that researchers expand the scope of their research and examine the role of individual differences in task engagement. Studies conducted in a natural L2 classroom are also important for generating a more comprehensive picture of learner engagement.

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APPENDIX A

Task instructions (selected)

Task 1. Descriptive task (simple).

Instruction:
You will be given a picture about a place in Hong Kong. Your friend will also be given a picture about the same place, but their picture is slightly different from yours. In this task, you need to describe your picture to your friend and find out **five differences** between your picture and your friend's. *You may not show your picture to your friend.* By the end of this task, you need to report the differences to the researcher.

You will be given three minutes to plan your speech. During the planning time, you may jot down notes on a piece of paper. However, you may not talk to your friend or refer to other source materials for information.

Task 2. Narrative task (Simple)

Instruction:
You and your friend will be given different picture prompts. In this task, you and your friend need to exchange the content of your pictures, sequence them in the right order, and narrate a story based on the content of your and your friend's pictures. *You may not show your picture prompts to your friend.* By the end of this task, you need to tell the researcher your story.

You will be given three minutes to plan your speech. During the planning time, you may jot down notes on a piece of paper. However, you may not talk to your friend or refer to other source materials for information.

APPENDIX B

Interview protocol

1. Please use some adjectives, nouns or noun phrases to describe your emotions when you performed this task.
2. Why did you experience (e.g., anxiety, enjoyment) during task performance?
3. Why did you experience different emotions in this task and the previous one(s)?
4. Which task is more engaging? Which task is the most engaging? Why?

APPENDIX C

Examples for data analysis

Indicator	Example
Elaborative clauses	S7: …But I do think that Chinese architecture classes is quite for him because he can learn the Confucius, which is quite famous in China.
Moves aimed at clarifying content	S1: I think there are two people. S2: Ok. S1: One suit and one pool of water. S2: Pool of water? It mean S1: Like a water on the ground. Yeah. S2: I know it. But I mean character. You know? S1: Character. Two. A woman and a man.
Moves aimed at clarifying language	S15: Handrail. S16: What? S15: Handrail. Near the sea. S16: What is handrail? S15: You…umm hold hold it on the bus. S16: Hold it? S15: On the bus, you stand. You hold it. S16: Oh handrail.
Affiliative backchannels	S46: And, and his major is biological science. S45: Yes S46: And we can see his hobbies is travelling and exploring nature. So S45: Yes S46: I will recommend him to study Chinese house and garden, including architecture, landscape and…culture, because he say… he loves Chinese architecture, landscape and cultural.