Cognitive engagement in Chinese adult EFL learners with different proficiency levels in speaking tasks

Yemeng Jiang

MSc in Applied Linguistics and Language Teaching, 2024

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Abstract

Numerous studies have highlighted the influence of language proficiency on the cognitive engagement (i.e., a learner's mental efforts in a learning process) of adult second language (L2) learners during group speaking activities. However, researchers have not treated the interplay between cognitive engagement and proficiency levels in speaking task types, such as storytelling and group discussions, in much detail. Understanding this interplay can facilitate L2 teachers to employ appropriate pedagogy and teaching strategies for better learning outcomes. Therefore, this small-scale classroom-based study aimed to delve into the impact of language proficiency on cognitive engagement by exploring the differences between adult L2 learners of varying proficiency levels during collaborative speaking tasks. The investigation employed Yin's (1994) case study methodology, loosely described as an in-depth investigation of some specific cases to understand complex phenomena. This methodology enables in-depth exploration of cognitive engagement, a multi-faceted and dynamic construct. Thus, this current study concentrated on two groups: one comprised three highly proficient advanced learners, and the other consisted of two moderately proficient intermediate learners. All participants took part in four consecutive task-based lessons (encompassing varied task types, including trait matching, summary, and discussion) within a story-based workshop featuring narrative stories as learning materials. There were various sources of data, including video recordings of the lessons, the learners' notes from the lessons, their task responses, the teacher/researcher's field notes, and stimulated-recall interviews with the participants after the lessons. The data were subjected to thematic and discourse analysis. The findings revealed that learners in different language proficiency levels showed great variations in their cognitive engagement in the three stages (preparation, presentation, and interaction) of three speaking task types. These variations lied in the cognitive engagement strategies, depth of information processing, and language outcomes. Furthermore, this study identified multiple factors, such as cognitive conflicts, self-efficacy, task familiarity, and vocabulary, which would influence cognitive engagement in adult L2 learners. Implications of this study and suggestions for future research and language practitioners were then discussed.

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Chapter One: Introduction

1.1 Background

Adult L2 learners, especially those without easy access to living or studying in an English-speaking environment, often find it challenging to improve their speaking ability (Madkur, 2018). Challenges not only stem from the inherent complexities of L2 speech production (Al-Jamal & Al-Jamal, 2014) but also the limited opportunities for honing their speaking skills in real-life interaction (Afshar & Asakereh, 2016; Gilmore, 2007; Ranta & Meckelborg, 2013). Faced with this dilemma, many of these learners choose to take local classroom-based or online L2 group speaking lessons. These lessons can often provide encouragement and language support from peers and the teacher (Alfares, 2017). While these benefits are valuable, many lessons prove ineffective in part due to using poorly designed tasks that fail to make learners interested and speak more (Farrell & Yang, 2019). Test-oriented or grammar-oriented language learning environment, which often prioritizes speaking accuracy over fluency, is another contributor to the ineffectiveness of L2 speaking lessons (Paakki, 2013). Moreover, the fear of making errors in speaking and the social pressure experienced in group learning mode discouraged many learners (Mak, 2011). Consequently, many adult L2 learners struggle to make progress in speaking, even after taking numerous group speaking lessons.

In response to these obstacles, language educators are actively exploring more efficient means to support adult L2 learners through group speaking lessons. Recent research (e.g., Ales et al., 2020; Hiver et al., 2020; Hiver et al., 2024; Philp & Duchesne, 2016) underscores the pivotal role of engagement, defined by Philp and Duchesne (2016) as "a state of heightened attention and involvement, in which participation is reflected in cognitive, social, behavioral, and affective dimensions" (p. 3), in language learning – particularly in relation to speaking practices. Based on Philp and Duchesne's (2016) definition, engagement is composed of four components: cognitive engagement, social engagement, behavioral engagement, and affective engagement. Cognitive engagement refers to learners' mental investment in the process of learning; social engagement refers to social relationships and interactions between learners; behavioral engagement pertains to learners' learning behaviors and physical actions; affective engagement, also known as

emotional engagement, describes learners' feelings, attitudes, and emotions. Pickering (2017) claims that cognitive engagement is the real driver of learning. In the context of speaking, this would mean that highly engaged learners tend to derive greater benefits from speaking tasks and make expedited progress. On the other hand, if learners are disengaged, they might not gain actual speaking improvement even if they are in the classroom.

Since the advent of engagement research in the 1980s, the term engagement has become a buzzword in the second language learning domain. Indeed, Sinatra et al. (2015) refer to it as "the holy grail of learning" (p.1). However, the impact of engagement on speaking performance and development remains under-explored (Harbour et al., 2015; Trowler, 2010). In contrast, motivation studies dominated the field of the psychological aspect of language learning (Fredricks et al., 2019). While motivation is typically understood as a desire or force that encourages learning (Dörnyei, 1998), engagement is briefly characterized as a set of dynamic actions and processes that define effective learning (Greene, 2015; Hiver et al., 2020; Mercer, 2019). Likewise, Reschly and Christenson (2012) claim that these two constructs should be viewed separately: motivation is the *intent*, but engagement is the *action*. As Hiver et al. (2024) argue, "Engagement defines all learning" (p. 2). This distinction underscores the need of more focused research on engagement in relation to speaking performance. Therefore, it is time for us to shift our attention from motivation to engagement when exploring adult L2 speakers' language improvement.

However, not all the dimensions of engagement are equally crucial for successful learning. Guo et al. (2023) assert that learners' behavioral involvement in activities is the starting point for authentic engagement. However, the issue is that learners who are behaviorally or socially engaged in the tasks may not engage in deep mental thinking about the target language or in real internalization of new knowledge. Greene (2015) views cognitive engagement as a superordinate construct compared to the other three, though they considered the other three components to play a supportive role. Similarly, Dao (2017) strongly indicates that only cognitive engagement significantly predicts L2 language development.

Therefore, the principal objective of this dissertation is to conduct a comprehensive examination of the cognitive engagement of adult L2 learners in group speaking tasks to gain meaningful insights into their engagement at different proficiency levels. Another goal is to identify the various factors that may impact learners' cognitive engagement. With this understanding, educators can more effectively structure speaking activities and offer enhanced support to adult L2 learners, ultimately facilitating their progress and bolstering their confidence in expressing themselves in their second language.

1.2 Research aims

According to Greene (2015), cognitive engagement is an ongoing, dynamic process that individual and contextual factors can influence. In other words, it may vary among learners and in different learning contexts. In the context of L2 acquisition, Zabihi and Ghahramanzadeh (2022) assert that proficiency is one of the most significant differences among learners (Zabihi & Ghahramanzadeh, 2022). They found that high-proficiency learners, compared with low-proficiency learners, appear to be less affected by speaking anxiety or insufficient language knowledge. In other words, competent learners are more capable of confidently tackling issues and making speaking practices meaningful and fruitful. Thus, it would be intriguing and pragmatic to explore the variations in cognitive engagement between learners with different proficiency levels, as most L2 speaking lessons are mixed with learners of different proficiency levels.

Additionally, much research (Dörnyei & Skehan, 2003; Ellis, 2004; Genesee & Hamayan, 1980; Oxford & Ehrman, 1992; Schmidt, 2012; Skehan, 1991) suggests that some individual differences can account for the discrepancies in speaking confidence and performance. However, in a group learning setting, the personal-level factors that impact learners' cognitive engagement, positively or negatively, have not been clearly identified. It would also be captivating to investigate the factors that enhance or hinder learners' cognitive engagement. In this study, learners' cognitive engagement is described in three stages in a speaking task: a preparation stage, a presentation stage, and an interaction stage. Therefore, this study separately compares the cognitive engagement differences and factors between advanced and intermediate learners in these three stages.

1.3 Dissertation outline

The dissertation will report on an exploratory qualitative study conducted to meet these aims and will be structured as follows. ***Chapter One*** (current chapter) sets the stage by introducing the topic. ***Chapter Two*** offers a comprehensive review of existing literature on cognitive engagement indicators, like attention, cognitive strategies, and information processing, measurement of cognitive engagement, the classification of cognitive engagement phases, and the impact of language proficiency and task types in cognitive engagement. ***Chapter Three*** details the study's methodology, including the participants, setting, data collection, data analysis, ethical considerations, and methodological limitations. ***Chapter Four*** includes the research findings. ***Chapter Five*** presents a discussion of the results with the existing literature. ***Chapter Six*** analyses the limitations of this study as a whole, highlights the findings, and indicates pedagogical and methodological implications and future research directions for language educators and researchers through cognitive engagement knowledge.

Chapter Two: Literature Review

2.1 Introduction

This chapter presents a review of research on cognitive engagement in group speaking tasks. It also discusses the differences in cognitive engagement between high-proficiency and low-proficiency learners by scrutinizing previous research regarding relevant theoretical underpinnings, research methods, arguments, and research findings.

This chapter first discusses the definitions of cognitive engagement in task-based language learning. This section attempts to present a review of the indicators of cognitive engagement, including attention, cognitive strategies, and information processing. An elaboration of the measurements used by researchers is then discussed, followed by the exploration of the categorization of cognitive engagement phases in tasks. The second part of this chapter focuses on the influence of learners' language proficiency and task types on cognitive engagement. The last section points out the current issues in cognitive engagement research and presents research questions.

2.2 Cognitive engagement

2.2.1 Definitions of cognitive engagement

Plentiful definitions of cognitive engagement have been proposed at the task level. For example, Rotgans & Schmidt (2011) describe it as "the extent to which students are willing and able to take on the learning task at hand" (p. 467). This definition focuses heavily on learners' will, motivation, and autonomy in learning from a psychological perspective. However, Li et al. (2021) have criticized it for not taking learners' authentic mental efforts into account but just emphasizing their mental manifestations.

Other scholars depict cognitive engagement as self-regulated learning. For example, Helme and Clarke (2001) say it is a form of deliberate task-specific thinking learners have for acquiring new knowledge or skills while participating in activities. Although simply saying "deliberate" does not fully explain what efforts learners invest in the tasks, this description resonates with Zimmerman and Martinez-Pons (1988, 1990) that self-regulated learning is a

goal-striving process involving sub-processes related to goal setting, planning, and monitoring learning, self-reflection, and reaction. Learners can manipulate their learning through a series of self-regulated thinking processes. It seems that cognitive engagement could be a cognitive aspect of self-regulated learning (Wolters & Taylor, 2012). Greene (2015) supports this claim and states that self-regulation theory can account for cognitive engagement. Therefore, researchers believe cognitive engagement should be viewed as a form of deeply-processed, elaborative self-regulation. A very recent study by Alam and Mohanty (2024) proposed a new model called The Framework of Self-Regulated Cognitive Engagement (FSRCE) that incorporates self-regulated learning (SRL) and cognitive engagement (CE) in a dynamic loop (See Appendix 13). This model illuminates the complex interplay between SRL and cognitive engagement. However, empirical studies have not yet validated this claim.

Another group of researchers maintains that cognitive strategies should be emphasized when defining cognitive engagement. Li et al. (2021), for example, portray it as "the extent to which individuals think strategically across the learning or problem-solving process in a specific task" (p. 2) in the course of problem-based learning (PBL), a teaching pedagogy through which learners acquire knowledge by taking part in real-life projects. This interpretation suggests that cognitive engagement is the possible result of strategic thinking, which highlights the use of learners' cognitive strategies. Some researchers, such as Greene (2015), agree with Li et al. (2021) that self-regulation strategies like rehearsal and summarization are strategies learners might use when they cognitively engage in tasks. Metallidou and Vlachou (2007) also consider elaboration and organizational strategies as measures of cognitive engagement. Lawson and Lawson (2013) agreed that learners must use self-regulating and metacognitive strategies to engage fully in tasks. It is argued by Guo et al. (2023) that cognitive engagement symbolizes adopting sophisticated deep learning strategies instead of superficial ones. They also asserted that "only when students really exert mental effort to internalize the language use rules, form-meaning connections, and various ideas accumulated can they enhance awareness of the language, enrich the repertoire of language and content resources, and retrieve them more promptly and effectively" (p. 23). Therefore, the definition of cognitive engagement should include an explanation of strategy use, as strategies enable learners to advance further in their learning.

These different definitions presented above flesh out the meaning of cognitive engagement. An integration of these definitions might offer a more comprehensive understanding towards cognitive engagement. Therefore, this study views task-level cognitive engagement as learners' deliberate, selective, and sustained mental investment (including attention, thinking, memory, and strategies) while being actively involved in tasks (Ales et al., 2020; Aubrey et al., 2020; D'Mello et al., 2017; Fredricks et al., 2019; Hiver et al., 2020; Hiver et al., 2024; Li, 2021).

2.2.2 Indicators of cognitive engagement

To date, scholars have identified a significant number of indicators of cognitive engagement (Lambert et al., 2017). Two widely accepted sets of indicators are those of Philp & Duchesne (2016) and Hiver et al. (2024). Philp & Duchesne (2016) stated that asking questions, completing another speaker's utterances, making evaluative comments, justifying an argument, making gestures and facial expressions, and private speech are cognitive engagement signs. By contrast, Hiver et al. (2024) included "peer interactions, students' questioning, hesitation and repetition, volunteering answers, exchanging ideas, offering feedback, providing direction, informing and explaining" (p. 4) as indicators for cognitive engagement.

The above two accounts proffer valuable insights into the verbal and behavioral manifestations of cognitive engagement. Indeed, some observable actions can be valuable hints or cues for cognitive engagement (Hiver et al., 2024). Nevertheless, these indicators seem too ambiguous and indirect to gauge learners' cognitive engagement. For example, Barnes (2008) argues that these indicators mentioned by Philp & Duchesne (2016) and Hiver et al. (2024) can be relied on, but they should be described more straightforwardly. Take "justifying an argument" as an example. Philp and Duchesne (2016) only say it is an indicator without mentioning what it is and how it should be judged. One potential explanation could be this: if learners use phrases like "I think" or causal connectives like "because of," we can then say that they have some reasoning occurring in their minds. This kind of reasoning can be identified as a justification - an indicator of cognitive engagement.

Furthermore, some indicators are not exclusive to cognitive engagement. In other words, these cognitive engagement indicators can also be signs of behavioral or social engagement. Thus, it is difficult to know which one is at play. For example, gestures and facial expressions are regarded as signs of behavioral engagement by Whitehill et al. (2014), and exchanging ideas is seen as a kind of social engagement by Zhang (2021). Although these "visualized" or identifiable hints can be relied on as cognitive engagement occurs in learners' brains, and it is impossible to see, researchers need to clarify how these indicators are used for cognitive engagement.

Therefore, the question is: What truly distinguishes cognitive engagement from other dimensions of engagement? The following part discusses the most widely used cognitive engagement indicators in three categories: attention, cognitive strategies, and information processing.

2.2.2.1 Attention

Attention or focus has been proposed (e.g., Ales et al., 2020; Sulis, 2022) as a strong indicator of cognitive engagement. Learners who pay attention use cognitive mechanisms to manipulate their brains to focus on something. The exhibited attention must be deliberate, selective, and sustained to yield linguistic gains of a given task (Hiver et al., 2024; Reeve, 2012; Svalberg, 2009). Ales et al. (2020) further argue that attention can be measured by attention fixation time via eye-tracking equipment. However, using fixation time as an observable indicator might be problematic. Learners' mental efforts could vary greatly even when they are all fixated on an item/task. For example, focused learners might use different cognitive strategies and make different cognitive decisions. All of these should be clearly explored through observable actions that the learners engage in, like note-taking, question-asking, or self-correction. A good example is Lambert et al. (2017), which investigated cognitive engagement based on the attention learners paid to elaborating and clarifying content. Thirty-two Japanese undergraduate students were assigned to two types of groups: one group worked with teacher-generated content (four-frame picture stories), while the other group received four empty picture frames and needed to create a story using their experience and imagination. Time on task and participants' L2 productions, including their questions and self-corrections, were analyzed. The results showed that

when learners created their own stories, they spent more time on task and paid greater attention to question-asking, meaning-negotiation, and detail-provision, all indicating a high level of cognitive engagement. In this way, attention measurement was effectively translated into measurements of time and quantifiable language production units.

2.2.2.2 Cognitive strategies

Apart from attention, many scholars suggest that the cognitive strategies learners use also play a role in cognitive engagement (Greene, 2015; Li, 2021). Greene (2015) highlights that the strategies learners often use are "[…] for thinking about what one was learning, the reflections on how best to learn it, and the exertion of mental effort to marshal the strategies and reflections" (p. 14). This claim describes the function of cognitive strategies, but what are these strategies? Alam and Mohanty (2024) specify the range of these strategies, "from shallow and surface-level, such as rehearsal and memorization, to deep and transformative, such as elaboration, critical thinking, and problem-solving" (p. 11). Although they only list a few strategies learners would employ, these are the core and prominent ones that learners more frequently pick.

Knowing how learners make decisions and applying these cognitive engagement strategies during the learning process is essential. Many researchers (e.g., Li, 2021) acknowledged that high-proficiency learners and low-proficiency learners show significant differences in these two aspects. The differences in the choices of strategies and the degree to which they use these strategies largely influence their learning outcomes.

However, cognitive strategies are a somewhat nebulous term. Cognitive engagement strategies proposed by Alam and Mohanty (2024) offer a more precise way of describing how learners facilitate their cognitive engagement. According to Alam and Mohanty (2024), cognitive engagement strategies are one dimension of cognitive engagement (the other one is cognitive engagement depth). Cognitive engagement strategies refer to the kinds of strategies learners use when they are in the process of engaged learning. It is such a pity that there is a paucity of studies using the term cognitive engagement strategies (e.g., Richardson & Newby, 2006). When searching for this construct in Google Scholar on 28th July 2024, only 300 studies were found, while 419,000 results appeared when typing in

cognitive strategies. Indeed, cognitive strategies can serve as an umbrella term, but cognitive engagement strategies seem more specific in terms of the strategies used in cognitive engagement.

2.2.2.3 Information processing

According to Kong and Hoare (2011), information processing occurs when learners are cognitively engaged in tasks. To achieve this, learners must retrieve their prior knowledge and associate it with stimuli to obtain new understanding or knowledge. Greene (2015), Li (2021), and Storch and Wigglesworth (2010) also agree with this and call for the need to know the extent or the depth of information processing. A seminal work by Craik and Lockhart (1972) describes the levels of processing theory in detail. This work indicates that language processing involves different levels. High-level processing indicates that students exhibit a high level of cognitive engagement. High-proficiency learners are likely to show such high-level information processing due to their solid knowledge base. As a result, they could efficiently generate a higher level of language gains. For example, high-proficiency learners tend to have complex cognitive efforts through analyzing, evaluating, and creating language content. In contrast, low-proficiency learners tend to have a lower level of information processing, such as "rote processing and other intentional cognitive actions that are more mechanical than thoughtful rehearsal and verbatim memorization strategies" (Greene, 2015, p. 15). This situation suggests that these learners may have a lower level of cognitive engagement.

It should be noted that the level of processing during the engagement period is not unchangeable (Greene, 2015). Instead, it could vary in task stages or learning activities in a lesson. Learners' prior knowledge of the topic, task type, learning environment, interactions, motivation, attention, interest, and other contextual elements are all identified as factors for cognitive engagement (Garcia-Poncea & Tavakoli, 2022).

An excellent source for analyzing information processing is language-related episodes (LREs). An LRE is defined by Swain (1998) as "any part of the dialogue in which students talk about the language they are producing, question their language use, or other-or self-correct" (p. 70). Current studies generally measure the number of LREs and/or the quality

of LREs, which refers to the complexity of languages (e.g., Nassaji & Tian, 2010), to see learners' information-processing and cognitive engagement. Tocalli-Beller (2003) suggests that cognitive conflicts (i.e., view conflicts among different learners) can be used to assess the quality of LREs. In the study of Zabihi and Ghahramanzadeh (2022), LREs were divided into cognitive conflict episodes and non-cognitive conflict episodes based on the degree to which learners in different proficiency levels think about language characteristics. Results showed that pairs of high-proficiency learners produced more cognitive conflict episodes than pairs of low-proficiency learners. However, the reasons why high-proficiency learners had more cognitive conflict episodes are not well explored. In addition, how proficiency contributes to the production of cognitive conflict episodes is not explained.

Moreover, the quality of LREs can be investigated through some language features. For example, Helme and Clarke (2001) suggest using the discourse markers and connectors learners use in their speech to measure the quality of LREs. The results showed that highly cognitively engaged learners used more discourse markers and interactional features (i.e., back-channelling, prompting, and new topic initiations) than learners who were not engaged. However, not all research uses discourse makers and connectors as the main language features in an LRE. Plus, what specific language features can be relied on during LREs to study cognitive engagement has not yet reached a consensus.

2.2.3 Measurements of cognitive engagement

Apart from defining cognitive engagement, how to measure cognitive engagement is another tricky task. Many different instruments have been used, yielding some valuable results. Self-report surveys (e.g., Xie et al., 2019) are among the most intensively used instruments by researchers. Questionnaires, especially involving Likert scales, have also been widely implemented in studies. Some popular scales include the *Motivation and Strategy Use Survey* (Greene, 2015), the *Situational Cognitive Engagement Measurements* (SCEM) (Rotgans & Schmidt, 2011), the *Strategy Use Questionnaire* (Wolters, 2004), the *Quantity and Quality of Self-regulation Scale* (Linnenbrink, 2005), and the *Motivated Strategies for Learning Questionnaire (MSLQ)* (Pintrich & de Groot, 1990). These scales primarily conceptualize cognitive engagement through cognitive strategy use and self-regulation, though specific items for each subscale were slightly different. Findings from

these self-report instruments are the results of self-descriptions and self-evaluations. However, participants tend to exhibit social desirability—a tendency that often occurs when individuals consciously or unconsciously report experiences that are considered socially acceptable or preferred (Gan, 2004; Leeming et al., 2014). It is highly likely that participants experienced peer pressure, low self-efficacy, and lack of confidence, which led them to hide their true feelings and thoughts. Using data from self-reports, therefore, might call into question the reliability and trustworthiness of studies that rely on these instruments. Besides, different methods towards even the same situation may yield completely different results. To avoid this, choosing instruments that are objective or a mix of them to report learners' actual mental investments can lead to more reliable results.

Classroom observation and interviews have also been employed either separately or combined to measure cognitive engagement (e.g., De Vito, 2016; Fredricks & Mccolskey, 2012). The former involves observing students to capture their behavior, while the latter is used to dig out more mental details about students' thoughts. However, both instruments might involve researcher bias and subjective interpretations (Fredricks & Mccolskey, 2012), which makes the results unreliable.

Eye-tracking equipment has also been used to capture learners' cognitive engagement or disengagement via eye movements. However, using eye fixation time as an indicator of cognitive engagement is debated among scholars. On the one hand, it is believed to offer a visualized evaluation of ongoing brain activities when learners engage or disengage in an event (Latif, 2019). Indeed, tracked eye movements can indicate where, when, and how long learners are engaged (Kiefer et al., 2017). For instance, Zhai et al. (2018) collected instantaneous visual data, including eye fixation duration, eye fixation counts, and the scanning path, to see how learners process reduced relative clause (RRC) sentences. Results reveal that learners had different cognitive loads using different approaches. On the other hand, Latif (2019) complains that eye-tracking technology alone makes it hard to present a comprehensive picture of learners' cognitive engagement. Instead, it needs to be complemented with other data sources to unlock the black box of cognitive engagement at a macro level.

Therefore, a fine-grained measurement approach is imperative. An innovative and reasonable combination of various instruments appears to be potentially advantageous. This is because cognitive engagement is a multifaceted construct that should be examined from different perspectives. Therefore, this study hopes to provide researchers with theoretical and methodological insights by adopting a novel blend of data collection and analysis methods.

2.2.4 The division of cognitive engagement phases in tasks

It is agreed among researchers that cognitive engagement is not a static but a dynamic construct (Aubrey et al., 2020; Chi & Wylie, 2014; Dao & McDonough, 2018; Fredricks et al., 2019; Greene, 2015; Hiver et al., 2024; Rotgans & Schmidt, 2011; Sharma et al., 2023). Nevertheless, there has yet to be an agreement on the classification of cognitive engagement stages.

Some researchers divide cognitive engagement into three phases. Cleary and Zimmerman (2012), for example, state that cognitive engagement refers to "the extent to which individuals think strategically before, during, and after performance on some learning activity" (p. 241). Therefore, they believe that cognitive engagement is composed of three stages in chronological order: before the task, during the task, and after the task. Specifically, when learners are first told to do a task (before the task), they analyze it, set some goals, and map out tackling strategies. After that (during the task), they take appropriate actions using the strategies and invest mental effort into the task. Later (after the task), they reflect on their performance toward the task and put effort into its improvement. However, Chie and Wylie (2014) propose a different categorization of cognitive engagement: note-taking, concept mapping, and self-explaining. This classification emphasizes the actual efforts learners engage in based on a temporal sequence of a task. However, these names might indicate some specific actions learners take and fail to be the stage names for cognitive engagement. For example, in the first stage noted by Chie and Wylie (2014), note-taking, it is very likely that learners do not start a task by taking notes. Instead, they could first engage in concept mapping by analyzing the task and weighing their knowledge gaps before writing anything down.

Other researchers consider cognitive engagement to encompass four or five stages. For instance, Alam and Mohanty (2024) propose a Framework of Self-Regulated Cognitive Engagement (FSRCE) (See Appendix 13). This model outlines four phases of cognitive engagement: the forethought phase, the performance phase, monitoring and feedback loops, and the self-reflection phase. Rotgans and Schmidt (2011), however, divide cognitive engagement into five stages: 1) The problem definition phase, involving the construction of an initial theory and identification of learning objectives; 2) The initial self-study phase, where students conduct preliminary research or self-study to validate their hypothesized theory and assess their identified learning objectives; 3) The initial findings sharing phase, during which students share insights from their preliminary self-study, with the tutor asking questions to help refine their learning objectives; 4) The self-study phase, where students engage in further individual study to address the identified learning objectives; and 5) The presentation and elaboration phase, where students share insights gained during their self-study, synthesize their findings, and evaluate whether they have adequately addressed all learning objectives. These two classifications seem more applicable to collaborative learning environments, as they incorporate sharing, discussions, and feedback from peers or teachers.

Taken together, none of the classifications mentioned above are group-based or take pedagogical procedures of task-based learning. However, this study aims to describe cognitive engagement in group speaking tasks. Hence, the methodology section will present a novel classification and explain how it integrates group learning to emphasize individual learning and social interactions.

2.3 Language proficiency

Being clear about the stages of cognitive engagement is just a start. Another critical thing is knowing how cognitive engagement exists and changes in different phases of a task. Contextual and individual factors that would influence cognitive engagement need to be analyzed. Learners' language proficiency has been foregrounded as a significant factor for cognitive engagement (Hiver et al., 2020; Huang et al., 2017; Li, 2021). Since this essay divided learners into different proficiency groups and saw how proficiency influences their

cognitive engagement, the following sections mainly discuss proficiency as a variable in cognitive engagement.

Language proficiency, defined by Gaillard and Tremblay (2016) as "the linguistic knowledge and skills that underlie L2 learners' successful comprehension and production of the target language" (p. 420), is widely believed to correlate with learners' ability to strongly engage in a task (Galaczi, 2008; Galaczi & Taylor, 2018; Garcia-Poncea & Tavakoli, 2022). As such, proficiency can influence learners' engagement types, the choices of cognitive strategies, and group performance (Huang et al., 2017). Some studies suggest that proficiency can affect learners' cognitive strategy use and oral performance. Huang et al. (2017), for example, examine the relationship between proficiency and strategy use and the differences in strategy use between different learners. Participants were 42 Grade 3 students who joined collaborative digital storytelling activities for 17 months in a Taiwan elementary school. These participants were grouped into 21 pairs, low-high and mid-high proficiency. In each activity, students in each pair used iPads to retell stories together using drawings, texts, and audio recordings. The results revealed that the mid-proficient students used more memory strategies to make mental connections with new English vocabulary than the high-proficient students. Also, students in different proficiency groups showed differences in compensation, metacognitive, and social strategies.

In another study, Garcia-Poncea and Tavakoli (2022) investigate the impact of task type and English proficiency on L2 learners' task performance and engagement. They recruited 15 learners at three proficiency levels (elementary, intermediate, and advanced) and asked them to deal with three dialogic tasks (personal information, narrative, and decision-making). They found that learners' language proficiency affected the accuracy and fluency of learners' oral performance and cognitive engagement with the task. In addition, advanced learners performed best in assessing the fluency and accuracy of their language and were the most cognitively engaged group of learners across the various tasks. Findings from both studies provide strong evidence that proficiency plays a vital role in cognitive engagement.

2.3.1 Mixed proficiency level in group learning

Group-based cognitive engagement has a theoretical underpinning from Sociocultural Theory (Vygotsky, 1978), indicating that learning occurs during social interactions. From this perspective, Zabihi and Ghahramanzadeh (2022) argue that interactions provide learners with a social environment where they can scaffold each other to make real learning happen. However, when learners of different proficiency levels are paired or grouped, such interactions benefit those groups of learners distinctively.

For example, Zabihi and Ghahramanzadeh (2022) found that proficiency pairings could significantly affect learners' cognitive engagement when they assigned 54 learners to pair low-low, low-high, and high-high. The results revealed that high-proficiency learners spoke more fluently and accurately and cognitively engaged than low-proficiency learners in pair activities. They showed less cognitive engagement in pairs with low-proficiency learners than those with high-proficiency learners. Low-proficiency learners also showed a similar tendency. When a low-proficiency learner was paired with a learner who had a lower level of language proficiency, they were not interested or challenged enough to engage cognitively. However, when a low-proficiency learner was grouped with another learner who was more proficient than them, they were quite motivated and learned many things from the interaction. Therefore, researchers concluded that putting learners of different levels together can weaken or boost their cognitive engagement.

Another study by Dao and McDonough (2018) investigates whether proficiency pairing influences learners' cognitive engagement using a repeated-measures, within-groups design. A group of 15 learners whose TOEFL test scores were at a middle level were designated core learners. Researchers first pair each core learner with a higher proficiency learner and then a lower proficiency learner through L2 narrative picture sequencing tasks. The study found that students who were more proficient showed increased cognitive engagement when interacting with peers of higher proficiency. However, the study's findings may not be widely applicable due to its reliance on a small sample size and focus on only one type of task. Future research could benefit from a more extensive and diverse sample and the inclusion of various task types.

2.3.2 The influence of task types on learners in different language proficiency

A plethora of studies have suggested that proficiency alone cannot determine whether a learner is cognitively engaged or the degree of their cognitive engagement, and other factors like task type can be equally important (Garcia-Poncea & Tavakoli, 2022). For instance, Qiu and Chen (2022) conduct an exploratory study investigating how two oral tasks, storytelling and opinion exchange, affected the engagement of twenty first-year undergraduate students in China. The results showed that participants uttered more words and had more turn-taking in storytelling tasks, which seemed less demanding than opinion tasks for learners. The findings also demonstrated that learners had more frequent discussions on language-related issues in the storytelling tasks than in the opinion tasks, which indicates a higher level of cognitive engagement.

Similarly, Garcia-Poncea and Tavakoli (2022) also found that narrative tasks could elicit more syntactically complex language from learners. Furthermore, Phung (2016) studied which of the two opinion-gap L2 tasks the 21 non-native English-speaking students preferred. The results highlighted that learners' preference for a task promoted more outstanding negotiation of meaning and form, representing a higher level of cognitive engagement. The results also indicated that conceptual and linguistic difficulties during the less favored tasks induced negative responses, including stress, anxiety, avoidance tendencies, and lack of speaking self-confidence, which inhibited learners' cognitive engagement. The above studies suggest that task types affect cognitive engagement – albeit on a small scale with a limited number of task types. Considering the variety of task types in L2 learning, more research is needed to view how other task types affect L2 learners 'cognitive engagement.

As discussed above, learners with different language proficiency levels might have distinctive cognitive engagement during speaking tasks. Two questions emerge: 1) Does proficiency impact learners' cognitive engagement? 2) if so, to what extent? This study aims to address these two concerns.

2.4 Research questions

After reviewing relevant studies, this study hopes to address two significant concerns about cognitive engagement. Firstly, the literature on cognitive engagement has not clarified the interplay between proficiency pairing during collaborative group learning and cognitive conflicts. Therefore, this study attempted to investigate the effect of interlocutor proficiency on learners' engagement with language, as measured by cognitive conflict episodes. That is, we tried to understand whether any method of proficiency grouping would lead pairs to produce and resolve a more significant number of cognitive engagement episodes.

Second, little is known about 1) whether task type and individual learner variables, such as proficiency level, impact learner engagement, 2) whether such variables interact with each other to enhance or diminish engagement, and 3) what potential such variables have on performance and learning. This study also aims to help fill this gap by examining the effects of dialogic task types and proficiency levels on task performance.

The research questions are as follows:

1) What are the cognitive engagement differences in speaking tasks between intermediate and advanced adult L2 learners in group settings?
    a) Do the two groups differ in the preparation stage?
    b) Do the two groups differ in the presentation stage?
    c) Do the two groups differ in the interaction stage?

2) What factors boost and/or impede intermediate and advanced adult L2 learners' cognitive engagement in speaking tasks in a group setting?
    a) Do the two groups differ in independent work (preparation and presentation)?
    b) Do the two groups differ in group interaction?

Chapter Three: Methodology

3.1 A qualitative case study

To offer a deeper, more nuanced, and more complex understanding of cognitive engagement differences between adult L2 learners of different language proficiency levels, I chose the exploratory qualitative case study method ((Philipsen & Vernooij-Dassen, 2007; Yin, 2009; Yin et al., 2015). According to Creswell (2009), "[q]ualitative research is a means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem" (p. 4). This research method is based on interpretivism, which acknowledges that different people would experience the same thing differently (Thanh & Thanh, 2015). A case study enables researchers to explore one specific aspect of an issue deeply through particular cases, so as to generate a more comprehensive understanding of a person, a process, or a group (Bell, 1993). Moreover, one unique characteristic of a case study is that it could involve multiple variables, regardless of the small number of cases (Yin, 2003). Since the sample size of case studies is manageable, researchers could spend more effort on offering a rich profile for each case (Miles & Huberman, 1994). Moreover, an exploratory case-based study normally permits new themes and patterns to emerge during the data collection and analysis stages. Therefore, a case study method is ideal for this study to understand adult L2 learners' cognitive engagement in different kinds of speaking tasks, the factors that boost or impede their cognitive engagement, and how learners' proficiency affects cognitive engagement.

3.2 Participants

This study adopted purposive sampling to recruit volunteers. According to Merriam (2002), researchers seek to "discover, understand, and gain insight and therefore must select a sample from which the most can be learned" (p. 61). Thus, this sampling approach is practically motivated, as well as time-saving and convenient (Farrokhi & Mahmoudi-Hamidabad, 2012). In February 2024, volunteer recruitment information was sent to my friends and social accounts with a description of the study and a poster.

Overall, 12 participants were willing to join the study, but only six adult learners (L1=Chinese, L2=English) in Shanghai were finally recruited. This is firstly because as Denscombe (2017) suggested that at least five participants are needed for a small-scale qualitative study to generate rich data, and the total number of participants should be at most thirty. Secondly, researcher was the sole teachers, so more than 6 learners would make delivering the four back-to-back lessons difficult. Thirdly, since the participants had to be observed on a detailed level, more than 6 participants would be challenging to monitor at the same time. Therefore, a sample size of five or six was deemed acceptable and manageable regarding classroom management and research procedures. The six learners were chosen based on the following three selection criteria:

1. English language proficiency should be at B1-B2 or C1-C2 level according to CEFR
2. Aged above 18
3. Able to attend four face-to-face lessons in Shanghai

One participant (B1-B2) withdrew from the study on the workshop day because of physical discomfort. In the end, five participants attended the workshop and subsequent interviews. Four of them were female, and one was male. The age range was from 22 to 35. The participants came from different professional backgrounds. Four participants held a master's degree (in different disciplines), and one participant was still an undergraduate student. The participants did not know each other before the study. The following table presents an overview of the participant information.

Participants	Age	Gender	Identity	Language test overall score	Speaking score/band	CEFR levels	Group
Lucy	22	Female	A undergraduate law student	TOEFL (109)	28	C1-C2	High-proficiency
Jack	26	Male	HR in marketing	IELTS (7)	6.5	C1-C2	High-proficiency
Zoe	31	Female	Middle school English teacher	IELTS (7)	6.5	C1-C2	High-proficiency
Kate	35	Female	High school Economics teacher	IELTS (6.5)	6	B1-B2	Low-proficiency
Mary	29	Female	A graduate medical student	Cambridge English Placement Test (18 out of 25)	B1 preliminary or B2 First	B1-B2	Low-proficiency

Table 1. An overview of participant information

Based on their CEFR level, five participants were divided into two groups. In the high-proficiency group, there were three learners: Lucy, Jack, and Zoe (pseudonyms), and in the low-proficiency group, there were two learners: Kate and Mary (pseudonyms). In this study, high-proficiency and low-proficiency learners were viewed as separate cases. At the same time, each learner was analyzed as an individual case. The descriptions of the groups offer general characteristics of learners with similar proficiency, while the personal profiles show distinctive traits of every learner. Both case levels, are valuable as they help shape holistic and comprehensive descriptions of the variations across different groups or learners.

3.3 Setting and materials

3.3.1 Story-based Learning

This study uses story-based learning as the learning mode to address the research questions while maximizing students' cognitive engagement and getting rich data. Choosing stories as vehicles to make learning occur and to study cognitive engagement is essential because stories can contextualise learning (McQuiggan et al., 2008) and can provide learners with a relaxed and enjoyable atmosphere. King (2001) mentioned four benefits of using stories:

1. Stories can activate our prior knowledge and memory and make learners associate their feelings and emotions with the stories, thus assisting learners to put forward their ideas and thoughts imaginatively.
2. The language used in the stories, especially the rich grammatical constructions, can be good models for the students.
3. Stories boost learners' active participation and motivation.
4. Stories have great potential to be suitable for learners at different levels.

These benefits brought by story-based learning could prompt learners to engage in their speaking activities cognitively, which would help the study to gather more interesting data.

3.3.2 Stories

Huang (2006) indicated that appropriately chosen and utilized short stories can significantly enrich the content and quality of English language teaching courses. Thus, four stories (i.e.,

Love Me, Love Me Not, The Devil's in the Details, True Beauty, First Star I See Tonight) were chosen from the BBC English website, which contains English learning materials for EFL/ESL adult learners worldwide. Stories from this website have all been tailored to a certain level of difficulty and are suitable for learners with different language proficiency. Each story has a clear Common European Framework of Reference for Languages (CEFR) level statement, which aligns with learners' proficiency levels. Therefore, these four stories are reliable for evaluating learners' cognitive engagement.

The stories used in the present study (See Appendix 9) were from the B2-C1 level. It was important that all learners (both the B1-B2 and the C1-C2 ones) would read the same stories in order to be on the same page for and engage better in the speaking tasks that followed. All the stories were checked independently by an English native speaker who is an experienced Certificate of English Teaching to Adults (CELTA) trainer and a student in the MSc ALLT to ensure that their level would be appropriate for all participants. Three pilot participants (one in the C1-C2 level, two in the B1-B2 level) also indicated that they could understand the stories easily. Although the pilot showed that learners in the B1-B2 level might have more unknown words (about 15) than those in C1-C2 (below 5), their learning performance indicated that all the learners still got the story well. Furthermore, some unknown words are necessary for this study as part of the research objectives is the behaviors/strategies the learners engage in when challenged by the content.

3.3.3 Speaking tasks

Three speaking tasks, Character Traits Matching (Task 1), Summary (Task 2), and Free Discussion (Task 3) (See Appendix 4, Appendix 5, Appendix 6, and Appendix 7), were designed explicitly in every lesson to examine the learners' cognitive engagement. There were two primary reasons for choosing these tasks. One is that these tasks are widely used and implemented by language educators across the globe. Another reason is that these tasks are found by Sotoudehnama and Hashamdar (2016) and Ghafar (2024) to be very effective for learners to develop their skills, thereby being good prompts for learners' cognitive engagement. Since the researcher (as well as the teacher of the lessons) had newly designed all the tasks, a native speaker (also a CELTA trainer) evaluated and

confirmed the validity of the tasks. Revisions included allocating reasonable time for each task for a better learning experience and giving clear teacher instructions.

The three tasks were mentally or cognitively demanding in different aspects. In the Character Traits Matching task, learners had to choose a personal trait for the characters in the story and find supporting evidence for it. They were given three minutes to prepare responses and then share in pairs or groups. To achieve this, learners needed to use many different strategies, like rereading, recalling, scanning, skimming, guessing, inducing or deducing, and reasoning. At the same time, they needed to be familiar with the content and create oral responses with opinions and explanations using their language knowledge. In the Summary task, learners were told to retell a part of the story. They were given three to five minutes to prepare and then share in pairs or groups. In this task, the learners might use strategies such as summarization, omission, information selection, paraphrasing, organization, and rearranging. In addition, they were required to link this information to create a cohesive summary. However, learners could use the linguistic input to create their output. In the Free Discussion tasks, learners were all put in a big group, discussing their views about open-ended questions, such as "What can we learn from Kate and Michael's story?". In this task, learners might adopt strategies like choosing a stand, elaborating, giving examples, contrasting, quoting, refuting others' views, reasoning, etc. Unlike the other two tasks, Free Discussion enables learners to use their knowledge and life experience to support their utterances. In tasks 1 and 2, the cognitive engagement is more individual-based, but in task 3, cognitive engagement is group-based.

The tasks were assigned in mixed groups with learners from different proficiency levels (intermediate and advanced) to fully explore the cognitive engagement variation across different proficiency groups and individuals. The following Table (2) shows an overview of the speaking tasks in four lessons.

	Task 1	Task 2	Task 3
Warm-up	**Controlled practice**	**Semi-controlled practice**	**Free practice**

	Learners are going to familiarize themselves with the story.	*Learners need to complete a fixed sentence structure by adding information/details according to the story.*	*Learners need to summarize a part of the story (by a timeline or questions).*	*Learners are allowed to freely express their ideas about questions and the themes of the stories.*
Lesson One	**Warm-up questions (3 mins)**	**Character Traits Matching Game (7 mins)**	**Timeline Summary Activity (15mins)**	**Free Discussion ((15mins)**
Grouping	The whole class	Intermediate Group (2) and Advanced Group (3)	One Group (5)	One Group (5)
Lesson Two	**Warm-up questions (3 mins)**	**Character Analysis Activity (7 mins)**	**Timeline Summary Activity (15mins)**	**Free Discussion (15mins)**
Grouping	The whole class	One Group (5)	One Group (5)	Intermediate Group (2) and Advanced Group (3)
Lesson Three	**Warm-up questions (3 mins)**	**Character Traits Matching Game (7 mins)**	**Picture Description Activity (15mins)**	**Free Discussion (15mins)**
Grouping	The whole class	Mixed Group 1 (2) and Mixed Group 2 (3)	Mixed Group 1 (3) and Mixed Group 2 (2)	One Group (5)
Lesson Four	**Warm-up questions (3 mins)**	**Character Analysis Activity (7 mins)**	**Timeline Summary Activity (15mins)**	**Free Discussion (15mins)**
Grouping	The whole class	One Group (5)	Mixed Group 1 (3) and Mixed Group 2 (2)	Mixed group 1 (2) and mixed Group 2 (3)

Table 2. An overview of the speaking tasks in four lessons.

3.4 Pilot study

A week before the main study, a pilot study was conducted with one advanced and two intermediate volunteers. One high-proficiency volunteer took Lessons One and Two alone and Lessons Three and Four with the other two learners.

A pilot study was carried out for some reasons, and I changed some parts of the primary research based on its data. First, it validated that 1) the stories are both easy for B1-B2 and C1-C2 learners, and 2) the tasks can draw out the full potential of participants' cognitive

engagement. Second, the pilot study familiarized me with the whole process. It prompted me to think about the instruments/procedures and reflect on the feedback and support I provided. Thus, I rewrote task instructions for precision and conciseness, and the time for each task, especially for preparation, was reduced. At the same time, as Glesne and Peshkin (1992) suggest, researchers in a case study should be as unobtrusive as possible. Hence, being both the teacher and the researcher in this study, minimizing my influence and control on participants' performance can yield more valid and authentic data. The result was that only when learners asked a question or had any other emergency did I show up and interrupt their discussion in the main study. Third, the three volunteers all joined stimulated-recall interviews to trial the procedure and the questions I planned on using. Changes involved the addition and reduction of some interview questions. Consequently, I struck a better balance between my research and teaching needs in the later workshop.

3.5 Data collection

3.5.1 Data collection procedure

Data in this study were collected through a four-lesson workshop and stimulated-recall interviews.

Participants received the stories one week before the workshop to familiarize themselves before taking the lessons. Each lesson was approximately 40 minutes long, with a five-or ten minutes' break between them. It should be noted that we initially planned to have one lesson each week instead of putting them all in one morning. However, we decided against this plan because if some participants were absent from some lessons due to uncontrolled situations, like diseases or business trips, the data collection would be significantly affected. The decision to implement all lessons in one go was justified by the fact that the study's primary goal was to see the differences in engagement between participants rather than the dynamic or development of cognitive engagement *within* a participant. After the workshop ended, the videos were uploaded to my personal Nexus 365 OneDrive and transcripts (See Appendix 10), another critical data source, were generated through Microsoft Teams.

After the lessons, each participant picked a time slot via Doodle to join the interviews. As Macaro (2006) pointed out, “[q]uestionnaires and inventories provide the broad picture; verbal reports (think-aloud techniques and task-based retrospectives) effectively yield insights into skill-specific or task-specific strategy use” (p. 321). Thus, one-on-one stimulated-recall interviews have been chosen as another method of data collection. Stimulated recall is a form of "introspective inquiry" (King, 2016, p. 127).

Before the interviews, the researcher watched all the videos. Critical moments for cognitive engagement were chosen, and some observation notes were taken. A list of interview questions aligned with the research questions had already been prepared. The question list had five core parts and eighteen potential questions (see Appendix 11). Remember that the questions had been assessed through the pilot (section 3.4) and, based on the participants’ feedback, some questions were added and others were deleted to make the interviews more focused and elicit more valuable data within a reasonable time.

During the interviews, participants were first asked general questions about their overall mental efforts, their in-class notes, and their recorded responses during the tasks. Then, the researcher replayed some documented moments to stimulate learners’ memory and let them elaborate on what they were thinking (Calderhead, 1981), drawing out unobservable and underlying information about cognitive engagement. However, participants might experience memory decay and be unable to recall and articulate every important or trivial detail (Li, 2020). To avoid this problem, Dörnyei (2007) suggested that retrospective interviews should occur soon after the events, especially within 24 hours, to ensure the validity of the participants’ descriptions. The participants were allowed and encouraged to use Chinese to express themselves as they often have more precise descriptions in their mother tongue. The five one-hour-long video-recorded interviews with five participants were all translated into English later. The Chinese transcripts were then member-checked by a participant to check the translation’s accuracy (Birt et al., 2016) since the responses of this participant were analyzed more heavily than others.

3.5.2 Types of data

Overall, there were five types of data collected: researchers' classroom observation and video-watching notes, students' in-class notes, verbatim transcripts of the four videos (one for each lesson, 3 hours in total) (See Appendix 10), including individuals' linguistic output opportunities (overall number of opportunities: 60 = 5 participants × 3 tasks × 4 lessons), and verbatim transcripts of stimulated-recall interviews (one hour for each interview, 5 hours in total) (See Appendix 12), and recorded videos that captured participants' facial expressions and learning behaviors.

Each kind of data plays a role in presenting an aspect of cognitive engagement. *Teachers' field notes* facilitate teachers to jot down their thoughts and ideas. As cognitive engagement often occurs during silence, it is not easy to know what it is and how it goes purely from classroom observation and notes. *Participants' notes* could demonstrate their mental efforts, the strategies used, and how they developed their responses. Also, those notes can help participants recall their memories during the stimulated-recall interviews. Four classes were recorded to get in-depth observation data because cognitive engagement often emerges when students engage in 'silent' behaviors through their facial expressions (Li, 2020; Philp & Duchesne, 2016; De Larios et al., 2008). In other words, *recorded videos* allowed the researcher to rewatch the activities and capture facial and behavioral clues not identified by the teachers' classroom observation. *The semi-structured interviews* allowed flexibility to deviate from those predetermined questions if necessary (Drever, 1995; Mahat-Shamir et al., 2021). The questions might vary depending on participants' responses, and some follow-up questions which are not listed might be asked. In this way, the interviews leave some space for participants to express themselves freely (Denscombe, 2017) and enable researchers to probe deeper into participants' personal experiences based on some exciting and crucial responses (Mahat-Shamir et al., 2021). *The transcripts of recorded classes* allow researchers to analyze learners' verbal responses without watching the videos repetitively. The same holds for *the transcripts of interviews*.

Through method and data source triangulation (Thurmond, 2001), this study evaluates participants' cognitive engagement through different lenses and makes connections between them.

3.6 Data analysis

Thematic analysis has been widely used to interpret qualitative data, such as transcripts of interviews, learners' diaries, and field notes (Hiver et al., 2024). Discourse analysis, which can provide nuanced examinations of learners' language use, has also been adopted by researchers (e.g., Sharma et al., 2023) to explore cognitive engagement through linguistic characteristics, such as word choice, grammar, fluency, logic, and pronunciation. This study employs a combination of thematic analysis and discourse analysis to unveil the multifaceted nature of cognitive engagement in diverse speaking tasks at the individual and group levels. Through this, any hidden information or underlying assumptions in participants' written notes, language output, behaviors, interactions, and responses are better disclosed and interpreted (Denscombe, 2017). Furthermore, a more robust and holistic analysis of cognitive engagement via triangulation is used to purposefully strengthen the validity of results and avoid the drawbacks of adopting one approach.

3.6.1 A coding scheme using thematic analysis and discourse analysis

In the thematic analysis, both inductive and deductive methods are used. According to Selvi (2019), inductive thematic analysis allows the themes to emerge and be identified by the researchers through the analysis without a preexisting coding scheme. In contrast, deductive thematic analysis often involves a pre-determined framework or model before the research (Selvi, 2019). I chose to integrate both analysis methods because deductive thematic analysis enabled me to associate my data with the themes presented in previous literature on cognitive engagement, and the inductive way helped me to shed light on observations that have not been discussed in the field. All the themes are analyzed through Braun and Clarke's (2006) six-step thematic analysis model (See Figure 1).

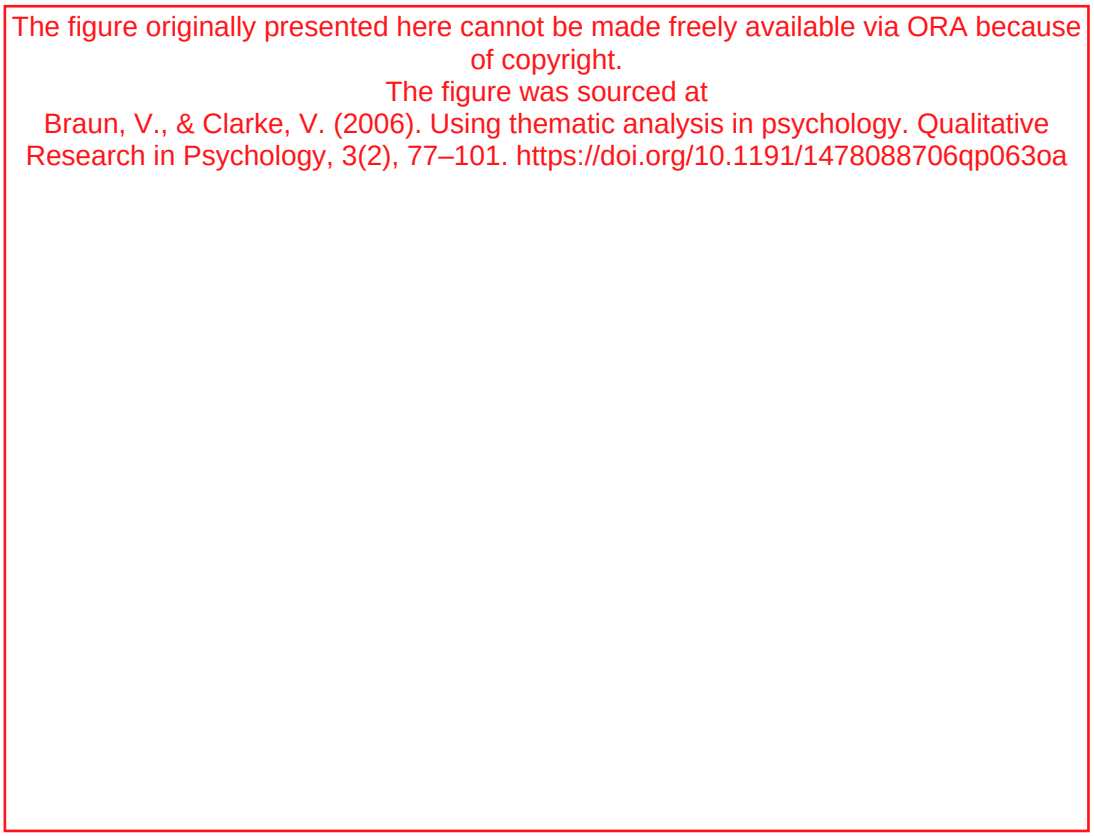
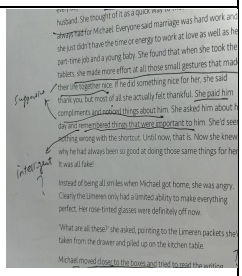
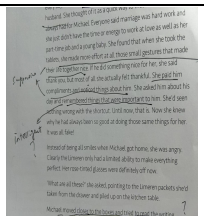


Figure 1. Braun and Clarke's (2006) six-step thematic analysis model

After the transcripts were checked for accuracy, I printed them out, and noted my impressions in the margin of the documents. Through the first reading, I discovered some evidence of the themes. Then, I reread the transcripts manually, highlighted and marked some key sentences, and annotated them with the codes to produce a thematic map. This enabled me to define the themes. Finally, I selected some examples to present my discoveries.

In discourse analysis, the data was analyzed using an inductive approach. There was not a plan before the coding. Instead, the data were examined, and the patterns in participants' oral responses were summarized and categorized.

The following Table (3) lists some codes found in other studies and some themes that emerged in this study.

Character traits matching activity-controlled activity						
	Mental efforts	**Code**	**Specific details**	**Explanations**	**Examples**	**Notes**
Individual-based	**Cognitive strategies**	**Questioning**	Ask a question about the task requirement	Participants have some concerns or doubts about the task and raised questions.	"We can just describe this person with those adjectives here. We are not able to use other adjectives?" (Zoe)	/
		Information selection	Underline key sentences in the handouts	Participants use underlines to highlight the information they choose and notice	In the recorded video, when Zoe was preparing for her responses, she underlined "remember things that were important to him" on Page 8 (notes).	
		Elaboration	Write down key words in the margin of the story page	Participants had some initial thinking and have some ideas	For "remember things that were important to him" on Page 8 (notes), Zoe wrote "intelligent ?"	
	Task responses	**Recalling**	Idea generating	Participants form some thoughts based on their understanding and impression of the story and the characters.	"I think that Kate is a little bit wired." (Zoe)	("Wired" is not a given word for this task.)
		Positioning	Show attitudes	Participants have some agreements or disagreements.	"I don't agree with these attitudes" (Zoe)	/
		Paraphrasing	Paraphrase	Participants use other words, phrases, or expressions to describe a meaning that has been included in the story or task by another word, phrase, or expression.	"Especially the positive attitude" (Zoe)	"Positive" is used to describe the quality like "confident" and "supportive."
Group-based	**Cognitive engagement strategies during interaction**	**Questioning**	Ask a question	Participants ask a question to let others answer.	"Could you please tell me?" (Zoe)	/
		Information selection	Underline in the story	When others are talking, participants can follow others' talk and underline the relevant places.	/	/

		Contrasting	Critical thinking	Participants are able to think from two sides after hearing other people's views	In Lesson Two, Lucy first thought Victoria was unhappy and gave some reasons, but after everyone expressed their views, she also thought that Victoria was happy about her life and added supportive reasons.	/
	Task responses	**Positioning**	Position	Based on other people's responses, participants used some positioning words to show their thoughts	"I also chose patient for Michael" (Lucy)	Here, "also" is a word that shows Lucy heard and knew Zoe's and view and expressed hers based on Zoe's.
		positioning/ recalling	Impromptu speaking	Learners can add their views immediately after others finish speaking and use evidence freely from the story based on their memory and understanding.	/	/
		Questioning	Correct others' mistakes	When peers have some mistakes in the language, they would come up with right expressions.	When in Lesson Two, Mary mistakenly used "nephew," Leo corrected her after her speech by saying "niece."	/
		Elaboration	Provide explanations	When peers are not sure of a word or an idea, learners would give some explanations.	In Lesson Two, when Mary was unsure of the meaning of nephew, Leo explained that "Nephew is a male, and niece is female."	/

Table 3. Coding of the elements of cognitive engagement

3.6.2 Inter-rater Reliability for the coding scheme

Reliability of measuring instruments is essential in any empirical studies. It has been defined as the extent to which measurements can be replicated (Koo & Li, 2016, p. 155). To

strengthen the reliability of the coding scheme and minimize the influence measurement bias might have on the data (Andringa & Godfroid, 2020; Harvey, 2021), inter-rater reliability, defined as "the consistency or agreement between different raters or evaluators when assessing the same participants or samples" (Ostovar-Namaghi et al., p.14), was considered.

The other coder was also from the MSc ALLT program. Approximately 5% of the data were shared (See Table 4), and some explanations were provided for clarity. A 50-minute meeting was held to discuss the details of the coding scheme and then code together. After the other rater returned the coding results, two coders discussed the results and addressed any questions, concerns, or ambiguities.

Lesson Four-Task3		**Rater 1**			**Rater 2**		
		Leo	**Kate**	**Zoe**	**Leo**	**Kate**	**Zoe**
Stage	Cognitive engagement indicators	Occurs ?	Occurs ?	Occurs ?	Occurs ?	Occurs ?	Occurs ?
Interaction (Listening & Speaking)	Body language-nodding/smiling	(e.g., Yes/no)					
	Asking questions						
	Offering explanation						
	Volunteering answers						
	Correcting others						
	Self-correction						
	Repetition						
	Pauses						
	Discourse markers						

Table 4. Co-coded data section between two raters

The reliability of binary data - whether cognitive engagement indicators emerged or not - was assessed using Cohen's Kappa, which presents the coefficient of agreement adjusted for chance (Cohen, 1960). The result shows that $\kappa = 0.91$. As suggested by Cohen, the result be interpreted as "almost perfect." Therefore, the coding was considered reliable for subsequent data interpretation.

3.7 Ethical consideration

Before collecting data, the University of Oxford Research Ethics Committee (CUREC) approved this research proposal (EDUC_C1A_23_347). All the participants received the participant information and consent form before the workshop. The researcher indicated that they could withdraw from the study at any stage. During the data collection process, all the research actions, including the design of workshops, the lessons, the activities, and the interviews, were based on the guidelines made by the British Education Research Association (BERA). Participants were well informed that anonymity and confidentiality were strictly guaranteed, and all information collected for the study was only accessed by the researcher and her supervisor for research and publication purposes.

3.8 Methodological limitations

Some of the methodological limitations of this study are identified below.

1) The researcher's dual role might weaken the reliability of the outcomes. While this role gave the researcher greater control over the study, reduced the risk of cooperation issues with others, and allowed for direct observation, it also introduced potential issues. Participants might have concealed their true feelings or altered their responses during interviews, influenced by their desire to please both the teacher and the researcher. A possible solution to address this is to choose a teacher to teach the lessons in the study so that the researcher can focus on the research only. However, I did not choose this approach because having a different teacher lead the sessions would need to check whether they faithfully adhere to the script, and I would struggle to monitor behaviors in real-time conditions.

2) Most of the data is qualitative and interpreted based on human understanding, which might involve researcher bias, interpretation preferences, or inaccuracy. For example, the coding of cognitive engagement indicators is purely based on the existing literature and the researcher's analysis. Some indicators were likely left out during the analysis stage because of personal choices, and some could be interpreted differently by other researchers. It should be noted that this exploratory study used intra-rater reliability to make sure that the data interpretation was as reliable as possible. However, for future studies, quantitative or mixed methods could answer these research questions (Shan, 2021). Questionnaires and self-reports from participants can also be used.

3) The third limitation pertains to the challenges associated with stimulated-recall interviews. Despite having pre-prepared questions, these may only sometimes capture the full extent of participants' thoughts. Participants might need help to recall precise details or distort their responses to present themselves more favorably (Nguyen et al., 2013). Additionally, the focus of the interviews was limited to a few 'key' moments, chosen based on personal experience and knowledge rather than established literature. Important moments might have been overlooked due to constraints in interview time and research focus. This study, therefore, supplemented the stimulated-recall interviews with data from multiple sources to mitigate this limitation.

Chapter Four: Results

This chapter presents the findings regarding the two research questions. The first question aimed to identify the cognitive engagement differences of adult L2 learners with different language proficiency in three speaking tasks. The second question examined contextual factors that could positively or negatively influence learners' cognitive engagement in speaking tasks.

4.1 Cognitive engagement differences between intermediate and advanced adult L2 learners

4.1.1 Preparation stage

Cognitive engagement differences during preparation for speaking were examined in Task 1 (Trait Matching task), Task 2 (Story Summary task), and Task 3 (Free Discussion) across the four lessons. The total number of occurrences of the four cognitive engagement indicators in the four lessons showed three advanced learners exhibited more indicators than two intermediate learners (See Figure 2). Descriptively instead of statistically, this suggests that advanced learners showed a higher level of cognitive engagement, while intermediate learners tended to have a lower level of cognitive engagement. Specifically, regarding "notes-symbols/keywords/sentences" and "underling," advanced learners did not show an advantage over intermediate learners (See Figure 3). However, advanced learners had more indicators in the "asking questions" and "body language-nodding/head shaking" categories than intermediate learners (See Figure 3). In conclusion, intermediate learners seemed to select useful information through underlining and note-taking. In contrast, advanced learners acted more actively during preparation: they also asked questions about the task requirements and unfamiliar words and showed their attitudes through body language.

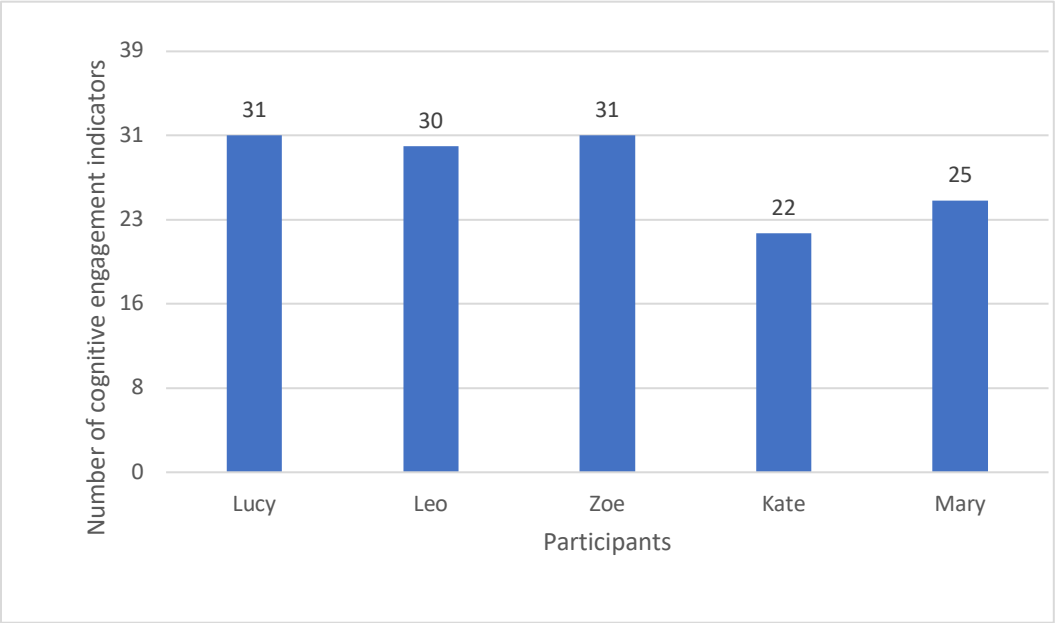


Figure 2. The total number of four cognitive indicators for participants in the preparation stage

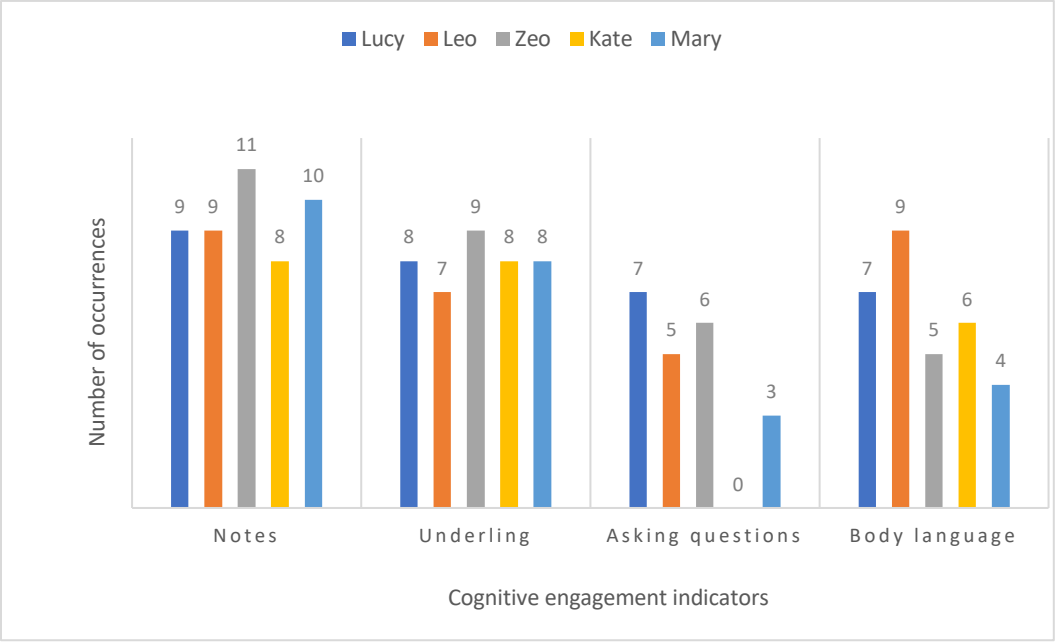


Figure 3. Cognitive engagement indicators in the preparation stage

Besides, this study found two major themes that distinguish advanced learners from intermediate learners during the preparation stage of speaking tasks. These themes include the cognitive strategy use and depth of information processing.

4.1.1.1 Theme 1: Cognitive Strategy Use

When learners prepared for their speaking responses, they adopted various cognitive strategies. Cognitive strategies like information selection, sentence structuring, content linkage, and the sequence of using them, influenced the learners' response preparation and appear to have led to different levels of information processing. For example, in Task 2, when summarizing a part of the story, intermediate learners used a story summarization framework (e.g., who did what?) to choose information and organize their thoughts from the story. They typically underlined or took notes of key verbs to facilitate their retelling. Mary described her mental efforts during the preparation for the summary task in the interview (Excerpt 1).

> ***Mary:*** The second one is a summary of an article. It might end up being more than that. I'll look for key verbs that indicate the character's actions. Since it involves time, place, and person, I'll identify where the actions took place and focus on the main verbs that describe what the character did. Then, I'll connect these verbs to form coherent sentences. (Excerpt 1)

From Mary's description, it becomes clear that she had a response framework to assist her in creating her response, and she just used the words and information from the story without much paraphrasing and reorganization based on her understanding. This summary task was not challenging for her and looked like a gap-filling activity. However, advanced learners exerted more mental effort during the task. In the interview, Lucy talked about her cognitive strategies when doing the summary task (See Excerpt 2).

> ***Lucy:*** The second task is summarizing. It involves reading the facts and then seeing if it's possible to connect them in the order in which they happened. After that, I paraphrase those events in my own words. (Excerpt 2)

Different from Mary, who just grabbed verbs and basic elements of sentences (like subject, verb, and object), Lucy extracted facts, complete meaning units. Also, she considered the logic of these facts, hoping to combine them into a logical order. Moreover, she spent time thinking about paraphrasing strategies and manipulating her language knowledge reservoir during her story-recalling responses.

The contrast of cognitive strategy use between Mary and Lucy is not the only evidence, but it demonstrates that advanced learners can use more cognitive strategies and use them more flexibly, supported by their higher level of language proficiency. Intermediate learners, on the other hand, rely more on direct methods to tackle the task without many designs of the responses.

4.1.1.2 Theme 2: Depth of information processing

The preparation stage revealed the different depth of information processing during the preparation stage. Intermediate learners in this study showed a lower level of information processing compared to advanced learners. For example, in the preparation time for Task 1, intermediate learners (Kate and Mary) spent the majority of individual preparation time rereading, scanning through the texts, and matching evidence with traits. When the time was up, they were only able to present one piece of evidence per trait. In their responses, they generated sentences like "I think Kate is insecure because in the story…". In other words, they just reported the things that they had already prepared, and provided few explanations, paraphrasing or personal thoughts in their responses. Yet, advanced learners showed a higher level of strategic information processing. They quickly located the relevant information for characters' traits based on their memory and understanding of the story (recalling) or through fast rereading. They spent more preparation time on organizing information, paraphrasing, and having rehearsals. For example, In Excerpt (3), Leo said he would go over all the things he wanted to say before sharing.

> ***Leo:*** After organizing everything in order, the summary is basically complete. When I present, I'm essentially just following my plan.
> ***Researcher:*** Does it mean that you have the words and structure prepared before you speak? So, when you expressed your ideas, you were ready?

> ***Leo:*** Yes. (Excerpt 3)

All the advanced learners found more than one piece of evidence for a particular character trait and more evidence for different traits. They did not limit themselves to one trait and one piece of evidence. Furthermore, advanced learners are found to set high standards for their responses. In Excerpt (4), Zoe expressed her concerns over whether her responses were persuasive to others during the interview.

> ***Zoe:*** When I give a point of view, I must have details to support it. I need to do this; otherwise, I feel that my expression is just an opinion and not very persuasive. (Excerpt 4)

Advanced learners' speaking responses during the lessons were all identified as more persuasive and containing more complex clause expressions.

4.1.2 Presentation stage

During the presentation stage, some cognitive engagement differences were identified across tasks in all four lessons. The overall number of occurrences of the five cognitive engagement indicators in four lessons showed that the three advanced learners exhibited more indicators than the two intermediate learners (See Figure 4). This implies that advanced learners still showed a higher level of cognitive engagement when they spoke. Advanced learners used more "discourse markers" and had more and longer "impromptu speech" (See Figure 5). Impromptu speech without much preparation seems to be an indicator of learners' language competence, as it is cognitively demanding and requires learners to have a solid understanding and memory of the content they were exposed to (i.e., a knowledge base) and sufficient language ability to construct meaningful constructions on the spot. It seems that the advanced learners set a higher goal for themselves in speaking tasks and were more willing to give a detailed response. Also, these competent learners might notice the problems with their prepared responses and then revised immediately, even when they were talking. They were identified to have excellent language resource management ability and can also think beyond the task. Their higher level of language proficiency supported them to be more fluent with fewer stops and sounded more natural.

On the contrary, intermediate learners tended to exhibit a lower level of cognitive engagement. Specifically, in the measurement of “pauses”, intermediate learners were found to have more stops than advanced learners even though they had shorter responses (See Figure 5). These pauses might be related to their lower level of language proficiency, especially their smaller vocabulary size and grammar knowledge. In their responses, more grammatical errors were found.

“Self-correction” and “repetition” did not show different patterns between intermediate and advanced learners (See Figure 5).

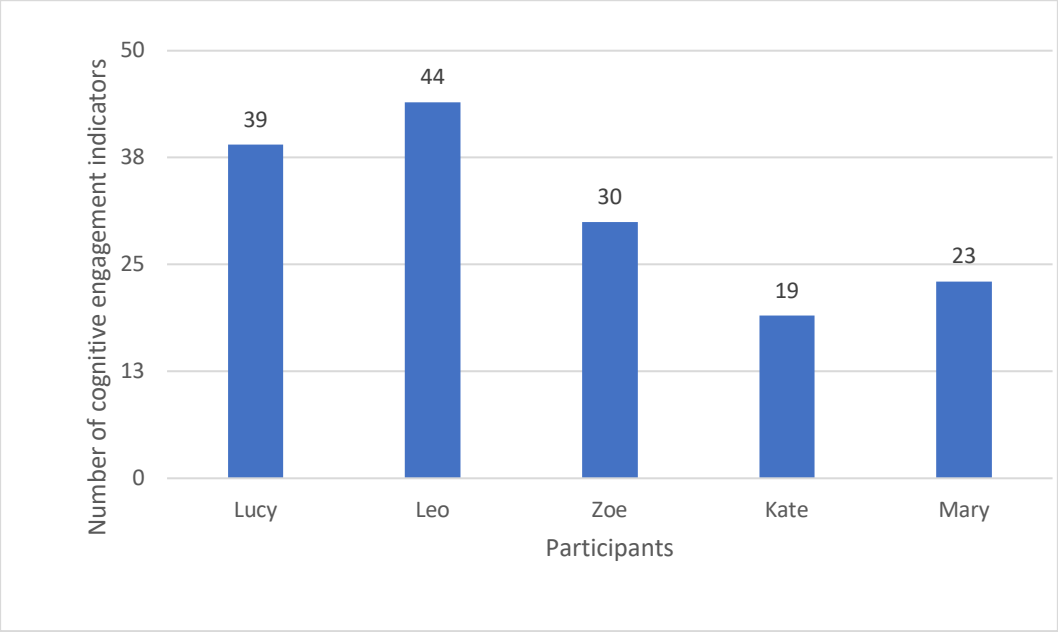


Figure 4. The overall number of the occurrences of five cognitive engagement indicators in the presentation stage

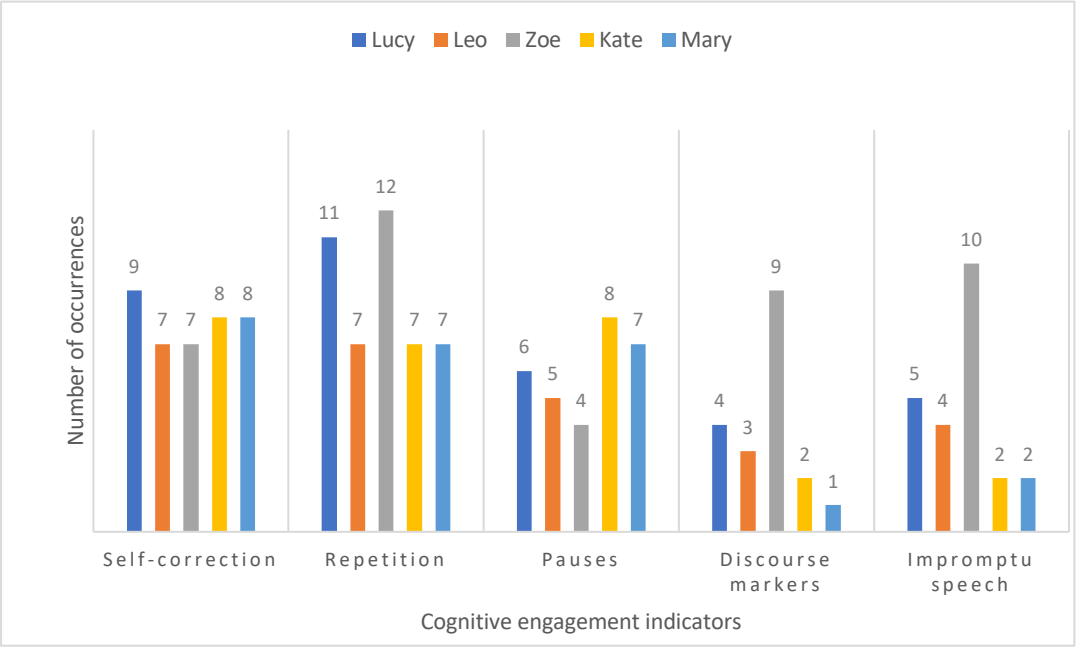
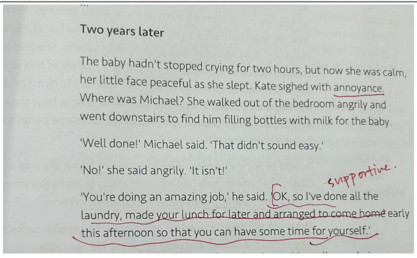
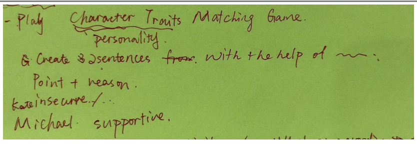
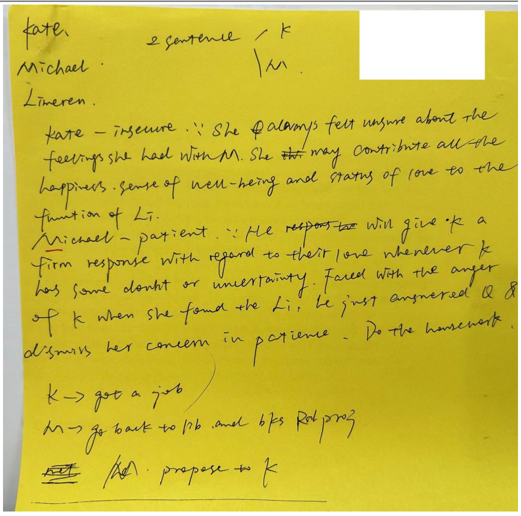


Figure 5. Cognitive engagement indicators in the presentation stage

When using discourse analysis to examine those participants' responses, one theme—elaboration—separates advanced learners from intermediate learners during the presentation stage.

4.1.2.1 Theme: Impromptu Elaboration

From the data from Figure (5), advanced learners have more impromptu speeches. Here, the comparison of notes and responses between Lucy (Advanced) and Kate (Intermediate) in Lesson One Task 1 (Trait Matching Task) is used as an example. The results showed that Lucy's and Kate's cognitive strategy use during their articulation varied greatly. The following Table (5) presents the notes and responses from Lucy and Kate for Task 1 (Trait Matching task) in Lesson One. The task can be viewed in the Appendix 4.

<table>
<tr><th></th><th>Kate</th><th>Lucy</th></tr>
<tr><td>Marks in the story</td><td> 
Two years later
The baby hadn't stopped crying for two hours, but now she was calm, her little face peaceful as she slept. Kate sighed with annoyance. Where was Michael? She walked out of the bedroom angrily and went downstairs to find him filling bottles with milk for the baby.
'Well done!' Michael said. 'That didn't sound easy.'
'No!' she said angrily. 'It isn't!'
supportive.
'You're doing an amazing job,' he said. 'OK, so I've done all the laundry, made your lunch for later and arranged to come home early this afternoon so that you can have some time for yourself.'</td><td>None</td></tr>
<tr><td>Notes</td><td> 
- Play Character Traits Matching Game.
personality.
Create 2 sentences <s>from</s>. with the help of ~~:
Point + reason.
Kate insecure. /..
Michael supportive.</td><td> 
Kate. 2 sentence / K
Michael. / M.
Limeren.
Kate – insecure ∵ She always felt unsure about the feelings she had with M. She <s>the</s> may contribute all the happiness. sense of well-being and status of love to the function of Li.
Michael – patient. ∵ He <s>respons to</s> will give K a firm response with regard to their love whenever K has some doubt or uncertainty. Faced with the anger of K when she found the Li, he just answered Q & dismiss her concern in patience. Do the housework.
K → got a job
M → go back to lab and b*s Rd proj
propose to K</td></tr>
<tr><td>Responses</td><td>Mary: He is supportive.
Kate: [Yeah, yeah. I agree with that. Michael is supportive.]
Mary: When he was…
Kate: [He acted as the role of a husband. And he said on Page 7. I found that he said to Kate. “I’ve done all the laundry, made your lunch for later and arranged to come home early this afternoon” so Kate can have some time for herself.]

Kate: 56 words</td><td>Lucy: [I also choose, the patient, this word, for Michael, because, you know, I also choose insecure for Kate. That's the only word I think maybe fit the personal trait with Kate among all these words. I think this word is like throughout the process of their love. From the beginning of their love and until and it involves in every process because, you know, like, whenever Kate maybe has some unhappiness with her husband, she would doubt it is the problem with me. They would doubt if it’s the problem with Limen that made them love each other. Also, because their final quarrel, she felt very angry when she found she found like his husband is also eating this tablet, so it’s all the presentation or the evidence of her insecurity.

And Michael is very patient. He will always give a like a full response to her. to his wife. when maybe his wife may be like self-doubt or uncertainty. And also, in the final quarrel faced with the anger of Kate, he just answered the questions. He dismissed her concerns very with his patience, and also, he is a very good husband because he will do the laundry do health work and support all the work in the home, when Kate is like in a busy status or something.]

Lucy: 223 words</td></tr>
</table>

Table 5. The notes and responses from Lucy and Kate for Task 1 (Trait Matching task) in Lesson One

As an intermediate learner, Kate's case can give some insights into how learners in this proficiency level cognitively engaged in the presentation stage after they did some preparation beforehand. In this task, Kate found a piece of evidence that Michael was supportive. She underlined the key sentence and wrote, "supportive" above it. In her notes, she also wrote, "Michael supportive". In her response, she simply used the word and read the sentence as a piece of supportive evidence. This showed that Kate did not have much impromptu elaboration beyond her preparation.

However, Lucy did not underline anything in the story material for this task. Instead, she directly wrote her choices of characters' traits and explanations in almost complete sentences in the notes. These sentences were created simply based on her memory and understanding through the use of some facts that can support the traits. When she was speaking, she referred to her notes, using words and sentences there. However, she did not copy her notes word for word. Instead, she made some flexible changes in her explanation and added more details in her final speech.

This comparison suggests that both intermediate and advanced learners were cognitively engaged in the task. Yet, intermediate learners did not demonstrate their mental process through elaboration when they spoke. On the contrary, advanced learners were more competent in adding elements to their speech, which is supported by their high language proficiency level.

4.1.3 Interaction stage

Cognitive engagement differences during interaction for speaking were examined in Task 1 (Trait Matching task), Task 2 (Story Summary Task), and Task 3 (Free Discussion) in the four lessons. The total number of occurrences of nine cognitive engagement indicators in four lessons showed that the three advanced learners exhibited more indicators than the two intermediate learners (See Figure 6). This suggests that advanced learners showed a higher level of cognitive engagement, while intermediate learners tended to have a lower level of cognitive engagement.

Specifically, descriptive data indicate that from advanced learners showed more cognitive engagement indicators in the following six categories: “asking questions”, “offering explanation”, “volunteering answers”, “correcting others”, “self-correction”, and “discourse markers” (See Figure 7). However, advanced learners used fewer “pauses” than intermediate learners. In the area of “body language-nodding/smiling” and “repetition”, both groups of learners had similar number of occurrences (See Figure 7).

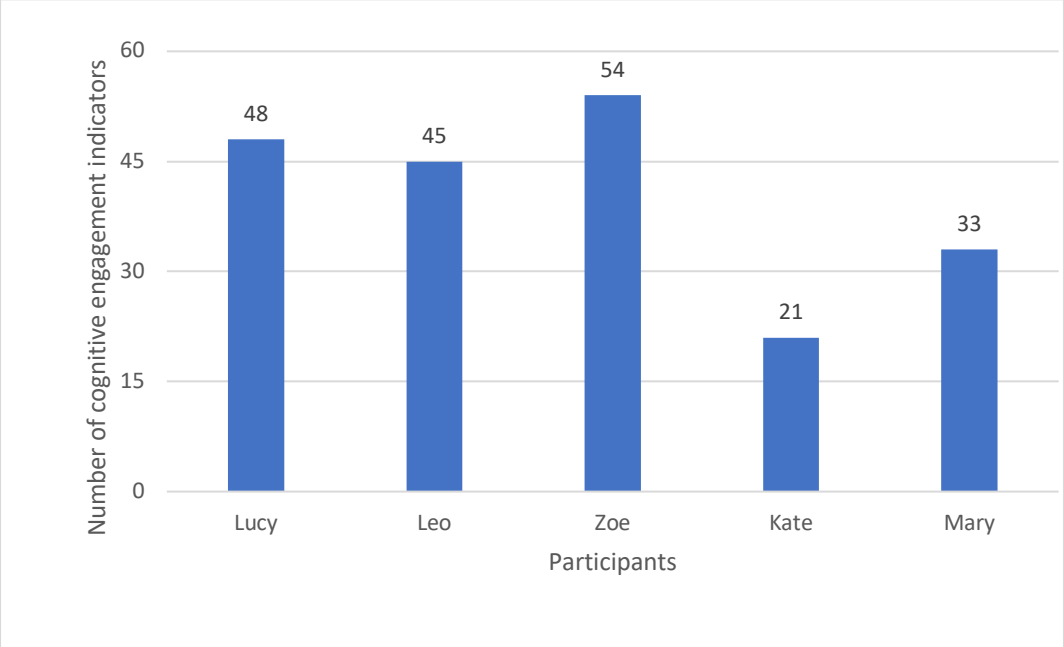


Figure 6. The overall number of the occurrences of five cognitive engagement indicators in the interaction stage

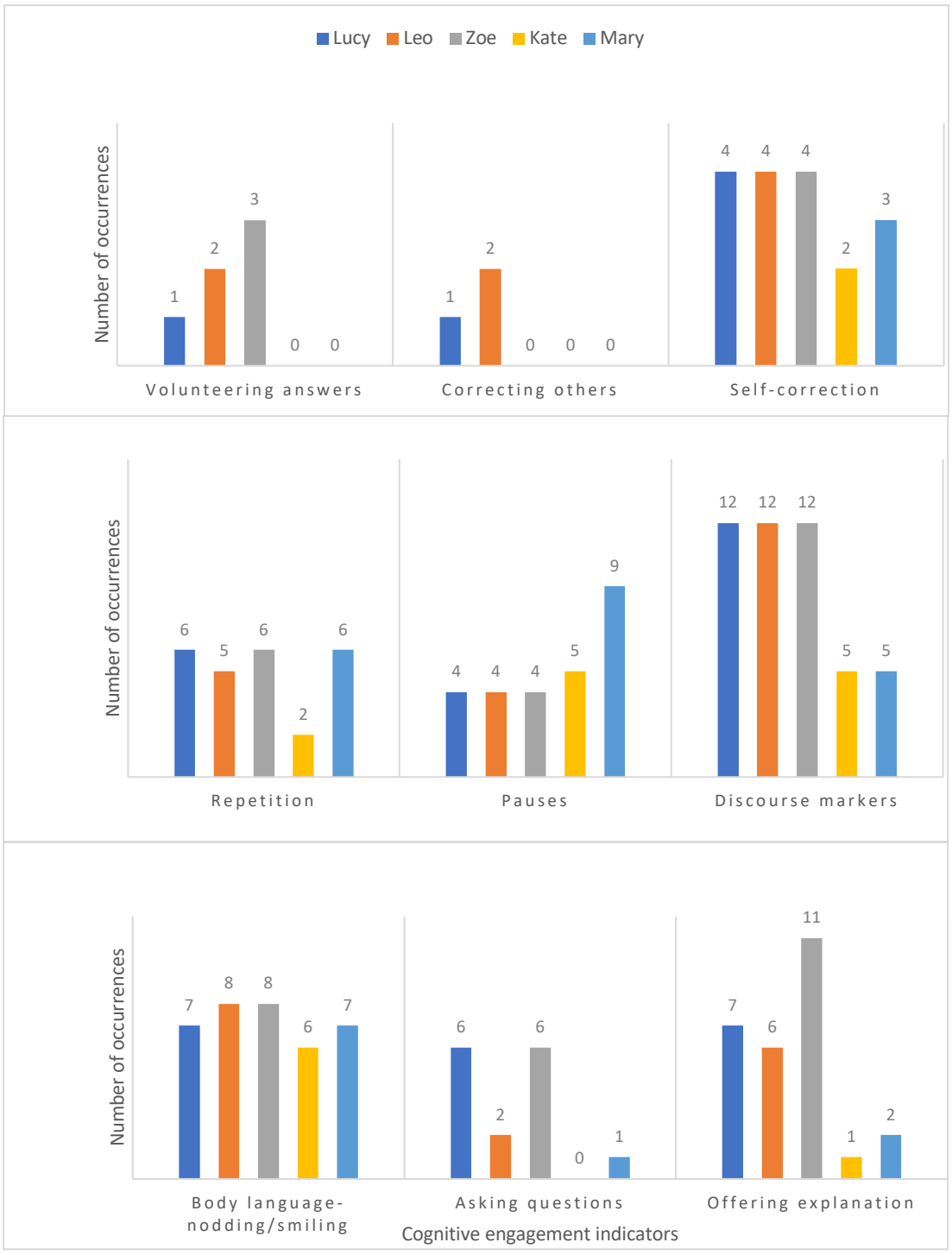


Figure 7. The occurrences of five cognitive engagement indicators in the interaction stage

Two major themes differentiate advanced learners from intermediate learners during the interaction stage of speaking tasks: cognitive engagement during listening, and view echoing.

4.1.3.1 Theme 1: Cognitive Engagement During Listening

When sharing in a group, learners would often keep quiet when others were speaking. The data from stimulated-recall interviews revealed that advanced learners were better at integrating the new stimuli (information) with their prior knowledge or understanding. Excerpt (5) from the interview with Lucy showed her cognitive actions when she listened to others in different situations.

> ***Lucy:*** After I've already stated my point of view, I'm more likely to resist others' ideas and engage in more criticism. I might try to find different reasons or angles to argue the same point. However, if others speak first and then I speak, I'm more focused on absorbing their points, which makes me more receptive to their ideas. At that moment, my brain might not be as actively engaged in arguing. (Excerpt 5)

Excerpt (6) showed Leo's mental efforts when he listened to others.

> ***Researcher:*** Let's start with nodding. When you're nodding your head in agreement with someone else's point of view, what is your brain thinking at that moment?
> ***Leo:*** Thinking about what? I actually think, well, for others to recognize, I don't think the brain thinks about anything. I think, well, what he said is very much the same as what I think. But if you don't recognize or understand, you will do a lot of thinking.
> ***Researcher:*** For example?
> ***Leo:*** For example, if you don't understand, you might think, "Why is he like this?" First of all, you will listen to him patiently because you want to understand why he is like this?
> ***Researcher:*** So, in summary, you will process some of his information, thinking about why he said what he did. Second, you will compare and contrast, noting how your views differ from his. Third, since there will also be an output link, you're considering how to present your own point of view in a way that could persuade others or, if you don't persuade them, at least clearly express your own perspective.
> ***Leo:*** Yes. (Excerpt 6)

Figure (8) below is a screenshot of the recorded Lesson Four when Leo is presenting his ideas. Leo sat in the middle of the picture, and Zoe sat on the left side of Leo (right side of the picture). At this moment, Zoe was looking at the material and had very little eye contracts with others.

Figure 8. A screenshot of the recorded Lesson Four

Excerpt (7) is the conversation with Zoe during the stimulated-recall interview about her state of mind when listening to Leo's speech.

> ***Researcher:*** And then I want to ask, while you were reading the article, what were you thinking at that time?
> ***Zoe:*** Well? Well? That's it, as soon as he said that adjective, I almost knew what he wanted to say, and I was already presupposing his answer. So after listening to his expression, I thought, 'I almost know what he wants to say.' Then, combining these keywords, I may not be thinking about his point of view in my head but my own. Maybe I'm looking for it in the article, that is, I want to argue my idea. Maybe I have to use different adjectives, and I might be looking for clues.
> ***Researcher:*** Well, but did I see you nodding your head at the end? It's that part of the nodding that you have, so what is that nodding? What happens when you are nodding?
> ***Zoe:*** Well? It was because what he said aligns with my predictions. (Excerpt 7)

It is very likely that Zoe's seemingly disengaged behavior was indicative of her complex cognitive engagement. Taking all the advanced learners' explanations of their mental efforts together, the similarity between them is that cognitive engagement emerges when they listen to others. They would evaluate others' views to see whether the views are reasonable by looking for the differences with their own views.

However, this is not the case for intermediate learners. The following figure shows a screenshot of a small group discussion between Lucy and Mary. In this picture, Lucy was sharing her summary of the fourth story in the Task 2 in Lesson Four, while Mary is listening to her response (See Figure 9).

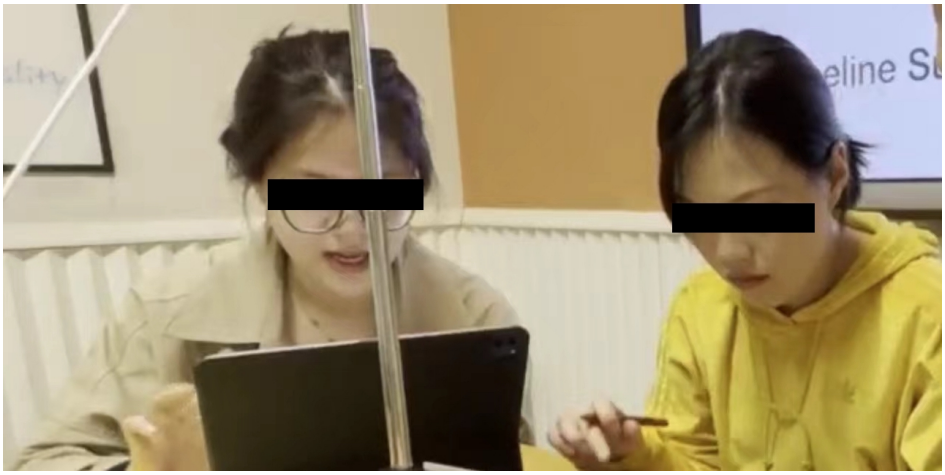


Figure 9. A screenshot of pair discussion between Lucy and Mary in the Task 2 in Lesson Four

Excerpt (8) is the conversation with Mary during the stimulated-recall interview.

> ***Researcher:*** Sorry, you were looking at the tablet, but I want to ask: What were you looking at at the time? It seems that your hand was still moving.
> ***Mary:*** Yes, I'm just saying that I'm looking for the sentence said by Lucy. Because it's also a summary of a section of the story, when a word is mentioned, I flip down because it follows that logic and timing. So, for each sentence she says, I'll look at what the story says and then see how Lucy created the sentence.
> ***Researcher:*** Well, okay, why did you choose to look at the tablet?
> ***Mary:*** …Well, because I haven't read these articles very carefully and only know their general meaning, when she's summarizing, I look at what the story is about and how he summarizes it. Then, I check how it matches with the story. (Excerpt 8)

According to Mary's explanation, she was following Lucy's response at that moment, even though she was not very familiar with the story. As she listened, she spent some time finding the relevant parts. Her mental efforts were focused on trying to understand how Lucy summarized this part and finding the relevant sections Lucy was talking about. She didn't question any part of Lucy's summary and didn't connect what she heard with her prior knowledge of the story. A different situation occurred when she was paired with Kate, another intermediate learner. In that case, she did not look at her tablet and did not pay special attention to understand what Kate was saying.

A similar situation occurred when Kate described her feelings upon hearing novel ideas from Lucy in Excerpt (9).

> ***Researcher:*** She might have some newer points. At the beginning of the week, she could have some relatively new points. When they discuss these new points, you might think, 'Oh, this is new,' and then that's it. You don't think about it anymore, like rationality or some other points, right?
> ***Kate:*** Well? Well, probably most of the time, right.
> ***Researcher:*** Okay, do you think you might not want to think about it anymore because you're staying at the level of understanding?
> ***Kate:*** Uh-huh. To be honest, I feel a little tired even at the end, so I feel like I might have been more engaged at the beginning and later in Lessons Three and Four. (Excerpt 9)

The analysis of these two silent moments from learners with different proficiency levels clearly indicated the level of cognitive engagement significantly varies between Zoe (advanced) and Mary (intermediate).

4.1.3.2 Theme 2: View echoing

In the analysis of discourse, it was observed that advanced learners tend to employ more view-echoing strategies in their responses. This means that they directly illustrate the relationship between their own views and those of others. For instance, when Lucy shared similar views with others, she used the word "also" in her response. The use of "also"

indicates that she comprehends both the views of others and her own views, as well as the relationship between the two (see Excerpt 10).

> ***Researcher:*** Why do you use the word "also" in your response?
> ***Lucy:*** Well, because I just said that, in fact, I am not very engaged in the third and fourth parts. I think one of the pieces of evidence is in the discussion. I will rely more on some existing opinions of others for my own answer. So, I think this also represents that I am learning from the ideas of previous people, summarizing them, and then adding some of my own thoughts based on whether I agree with them or not. That's why I used the word 'also.' (Excerpt 10)

On a similar vein, Leo used "absolutely" to show the differences between his idea with others' (See Excerpt 11).

> ***Researcher:*** How did you come to use the word "absolute" in your response?
> ***Leo:*** Well? The first answer is a positive one. Also, I believed that the researcher is guilty.
> ***Researcher:*** Well?
> ***Leo:*** Yes, this is the answer that I believe in very much, so it is very normal to use 'absolutely.' It is a very normal word. I remember that someone before me had a different answer. He was saying 'guilty' or 'not guilty' or something, which was different from my answer.
> ***Researcher:*** Well.
> ***Leo:*** So, I use 'absolutely' to emphasize that I think it's absolute. My answer is different from theirs, and I have my own reasons. I believe in my own opinion, so I use 'absolutely.' (See Excerpt 11)

In contrast, low-proficiency learners showed more independent responses from others. They are less likely to resonate with others. For intermediate learners, it seems that their cognitive engagement ended when they finished speaking and did not take further thinking about their response or other people's.

4.2 Factors that affect adult learners' cognitive engagement

4.2.1 Preparation and presentation-Individual work

Interview data revealed that when learners worked on the speaking tasks individually during the preparation and presentation stage, a variety of factors enhanced their cognitive engagement (See Table 6).

Participant	English proficiency	Factors that boost their cognitive engagement	Factors that impede their cognitive engagement
Lucy	Advanced	◦ Information that differs from her experience and knowledge (cognitive conflicts) ◦ Information that matches her prior knowledge (cognitive conflicts) ◦ Unknown words ◦ Interesting stories ◦ Challenging task	◦ Fatigue ◦ Express what she had already known ◦ Fear of making grammatical or lexical mistakes ◦ Unchallenging task
Leo	Advanced	◦ Interesting stories ◦ Challenging task ◦ Information that differs from her experience and knowledge (cognitive conflicts) ◦ Self-motivation ◦ Willingness to do the tasks ◦ Break between lessons ◦ Teachers' instructions ◦ Teacher support and caring	◦ Unchallenging task ◦ Knowing others are more competent in English than him (Peer pressure) ◦ When the story is too long
Zoe	Advanced	◦ Interesting stories ◦ Challenging task ◦ Familiar with the story ◦ Self-doubts when unsure about her understanding Information that differs from her experience and knowledge (cognitive conflicts) ◦ Disagree with the characters' actions ◦ Information that differs from her experience and knowledge (cognitive conflicts)	◦ Familiar task ◦ Limited preparation time
Kate	Intermediate	◦ Interesting stories ◦ Unfamiliar words ◦ Teachers' explanation ◦ The task design	◦ Fatigue ◦ Unknown words ◦ Fear of interrupting others
Mary	Intermediate	◦ Interesting stories ◦ Know how to deal with the task ◦ Unfamiliar words	◦ Fatigue ◦ Unchallenging task ◦ Guess that others have already know ◦ Unknown words

Table 6. Factors that boost or impede learners' cognitive engagement in individual work

4.2.1.1 Major factors that boost advanced learners and intermediate learners

The three advanced learners were found to be pushed by challenging tasks during the preparation. That is, if the tasks were unchallenging and familiar (i.e., they knew exactly what to do and how to do it) without any difficulties, they felt less engaged. Advanced learners all expressed that they engaged more in Task 3 (Free Discussion) than in Task 1 (Trait Matching) and Task 2 (Summary). For them, discussion is a challenging task as they need to articulate their opinions with persuasive evidence. Moreover, they also said that cognitive conflicts caused by discrepancies between the information they got and their prior knowledge stimulated them to think deeply. Lucy's description of her thoughts with one particular sentence in the story "Love Me, Love Me Not" (Lesson One) is a great example (See Excerpt 12).

> ***Lucy:*** Because I remember that when I first gave my summary, I said that they went back to their normal routine and, even though they are very busy with real life, they tried their best to meet each other. So, in this scenario, it seems like the two people love each other very much and try their best to be together. However, the sentence "everyone expects them to get married" does not align with the previous description. I think this sentence does not support their love as much as the previous sentence does. I want to point out that this sentence may not support their love as strongly as the previous description.
> ***Researcher:*** Okay, so you notice the difference between this sentence and the other descriptions. Does this sentence seem weird and odd to you?
> ***Lucy:*** Yeah, because, uh, I think this sentence is not so consistent with the words or the summary I just mentioned. So, I want to point it out. (Excerpt 12)

It is clear that Lucy was cognitively engaged when she came across information that contrasted with her understanding during her preparation for the speaking task. However, intermediate learners did not mention that cognitive conflicts helped them engage in preparation. Kate and Mary said that, if they knew how to do the task, they would be more engaged in creating their responses but, if the task is too difficult, they might be disengaged.

4.2.1.2 Major factors that impede advanced learners and intermediate learners

In task 1 and task 2, advanced learners showed some disengagement because the task was not sufficiently difficult for them. During the interview, Zoe explained that, for example, summary is an activity that is familiar to her and knows exactly what she should do (See Excerpt 13).

> ***Zoe:*** As for the second summary, it may be something that I often include in my work, so I think it's something I am familiar with. Well, it doesn't seem to catch my attention.
> ***Researcher:*** Does it mean that you know well how to summarize a section of a story?
> ***Zoe:*** Yes. (Excerpt 13)

Interestingly, this finding contradicts intermediate learners who, as discussed above, considered that easy tasks made them more engaged instead.

For intermediate learners, it was unknown words that heavily impeded their mental activity as they could not figure out the meanings of words and sentences and faced comprehension problems. However, it should be stated here that unknown words are different from unfamiliar words (words they had seen before but whose meanings they did not remember). In the case of unfamiliar words, learners could try to rely on the context to guess the meaning, which promoted their thinking. Mary in the interview explained how she dealt with these words, and how unknown words totally stopped her from thinking (See Excerpt 14).

> ***Mary:*** Well, it's because he uses many words that I recognize or understand, but I don't usually use them myself. For words like these, I'll grasp them as they may be more useful and I might use them later. However, if it's a word I'm completely unfamiliar with, I might not pay any attention to it. The words I focus on are the ones that catch my attention or that I might read or see, but not necessarily the ones I use.
> ***Researcher:*** Okay. Why do you pay attention to this kind of words?
> ***Mary:*** I'm familiar with this word because I've seen or read it before, but I haven't mastered it myself, so I won't use it in my own speech yet. However, if I encounter it in conversations, I will recognize it and remember its usage for the future. On the other hand, if there's a word

I don't know at all, I might not pay much attention to it, because this isn't an exam where I need to understand every piece of information. (Excerpt 14)

4.2.2 Interaction-group discussion

Interview data also found diverse factors that enhanced or impeded cognitive engagement in group interactions (See Table 7).

Participant	English proficiency	Factors that boost their cognitive engagement	Factors that impede their cognitive engagement
Lucy	Advanced	◦ Positive interactive atmosphere ◦ Different views from others (cognitive conflicts) ◦ Paired with high-proficiency learners ◦ Feedback from the teacher ◦ Guidance from the teacher	◦ Fatigue ◦ Paired with low-proficiency learners
Leo	Advanced	◦ Different views from others (cognitive conflicts) ◦ Paired with high-proficiency learners ◦ When others did not speak fluently ◦ Others' positive reactions ◦ Supportive learning environment	◦ Similar views from others ◦ Other people's negative reactions towards his responses ◦ When others spoke fluently ◦ When others say things that he did not prepare
Zoe	Advanced	◦ Different views from others (cognitive conflicts) ◦ Teachers 'explanation of an unknown theory "social clock" ◦ Fear of silence during interaction ◦ Wanting to move on to the next question ◦ Others' appropriateness of word choice ◦ Unknown words ◦ Similar views ◦ Others' responses did not match her predictions or contrasts with hers	◦ When others say things that she did not prepare
Kate	Intermediate	◦ Different views from others (cognitive conflicts) ◦ Others' excellent pronunciation ◦ Others' outgoing personality ◦ Similar views from others	◦ Fatigue ◦ When others speak too fluently but did not understand ◦ Say things to show your respect for others

Mary	Intermediate	◦ Different views from others (cognitive conflicts) ◦ Familiar words ◦ When others said things she was not familiar with ◦ Others' excellent fluent expression (Paired with high-proficiency learners) ◦ Willingness to practice speaking ◦ Information that matches her prior knowledge (cognitive conflicts) ◦ Want to show humour	◦ Fatigue ◦ Unknown words ◦ Paired with low-proficiency learners ◦ When other do not familiar with what she was saying

Table 7. Factors that boost or impede learners' cognitive engagement in group sharing

4.2.2.1 Major factors that boost advanced and intermediate learners

This study found that a supportive interaction atmosphere, cognitive conflicts (different or interesting views), teachers' explanations, and the desire to hear others' opinions are the main factors that boost L2 adult learners' cognitive engagement across two groups. However, advanced learners had more mental thoughts when they heard different or interesting views, thus engaging more when receiving these stimuli. This was made particularly apparent in the free discussion, where high-proficiency and low-proficiency learners were all cognitively engaged but at different levels. When low-proficiency learners expressed their ideas and reasons for each discussion question, high-proficiency learners could precisely express the degree to which they agree or disagree with their statements, provide more evaluation of the questions and other responses, and even had questions towards others and provided explanations for others' questions. This shows that high-proficiency learners could use strategies of critical thinking, evaluation, questioning, and commenting. However, even in the same proficiency group, different learners exhibit different cognitive strategies. For example, Zoe provided more explanations than Lucy or Leo. Leo used fewer questioning strategies to help him engage compared to Lucy and Zoe. For example, in Excerpt (15), Leo elaborated on how he dealt with confusion when listening to others.

> ***Leo:*** For example, if I am puzzled, first, I listen to the speaker patiently because I want to understand why the speaker thinks that way. At the same time, I process some of the information, thinking about why the speaker said so. Second, I compare the speaker's

> information with my own thoughts since I have different views. Then, I consider how I can persuade others if I insist on my point of view. (Excerpt 15)

4.2.2.2 Major factors that impede advanced learners and intermediate learners

During the group discussion, three factors dominantly prevented advanced learners to cognitively engaged in the tasks. The first is the similar views from others. In Excerpt (16), Leo described his feelings.

> ***Leo:*** When grouped with learners whose English is better than yours, it is very normal that they would express views similar to yours first. So, when something has already been said by others, I would not repeat a similar view. (Excerpt 16)

In this case, Leo stopped his cognitive engagement when others said the things he wanted to say. Leo also shared that peer pressure negatively influenced his engagement, especially when he interacted with learners who are more competent than him. The Excerpt (17) described his thoughts in detail.

> ***Leo:*** If a group member shows impatience, I will talk less and feel embarrassed and nervous. However, this did not occur in this workshop. (Excerpt 17)

Although peer pressure did not influence Leo greatly in this workshop, he said this happened frequently in his previous group learning experience.

On the contrary, intermediate learners were found to have a low level of self-efficacy because of their low language proficiency, which prevented them from expressions their ideas in the discussion. In Excerpt (18), Mary explained how she felt unconfident and uninterested in the task and how her mental struggles underwent and then finally gave up joining the group.

> ***Mary:*** The last activity is to discuss. I want to say something, but my spoken language is usually not very good, and I don't practice much. There are many obstacles, especially with finding the right words. So, I think, 'Oh, forget it,' if I can't find the right word in my head. If I

> want to express my complete idea, it seems too troublesome. I can't do it. I would need to use my mobile phone to search for the words, so I just forget it and don't express it.
> ***Researcher:*** Okay, so you don't know how to express that, right?
> ***Mary:*** Yeah, I have an idea, but I think if I want to express it, it will definitely cause ambiguity given my current level of spoken English. So, I feel that I don't have much interest in discussing it, and I won't talk about that part. (Excerpt 18)

In Excerpt (19), Kate also expressed her concerns over group discussion with advanced learners.

> ***Researcher:*** Well, okay, I want to ask why you did not contribute much in the mixed group with advanced learners?
> ***Kate:*** Well, there may be some difficulties with language skills and story content. I also think it is partly due to my personality, especially when I am talking with strangers.
> ***Researcher:*** Do you think you are extroverted (E) or introverted (I)?
> ***Kate:*** I often need more time to get familiar with others, and I feel that I do not speak as fluently as they do. (Excerpt 19)

From Mary and Kate's descriptions, it seems that this low level of self-efficacy mainly originates from their low level of language proficiency, which results in their thoughts of giving up during group discussions with high-proficiency learners. When Mary and Kate were talking to one another, they felt that they were more focused on presenting their ideas, which they had prepared beforehand. However, neither of them expressed many ideas and there was not much discussion between them. It is worth noting that individual differences were shown between Kate and Mary. Kate was never the first one to share, which might have been due to her introverted personality. When other participants were speaking, she would stare at the materials, turn pages, and have very little eye contact with her partner. She had no further comments on others' ideas. In contrast, Mary was often the first to share, though she struggled with some words, showed doubts, and paused more often in her responses. Perhaps individual differences, such as personality or self-motivation, were at play in addition to factors from group learning.

Chapter Five: Discussion

This chapter presents a discussion of the findings in the previous chapter. It will be divided into two sections: the first will explore cognitive engagement differences between intermediate and advanced learners; and the second will address the factors that promote or impede cognitive engagement. In the first section, five major cognitive engagement differences - cognitive strategy use, depth of information processing, impromptu speech, cognitive engagement during listening, and view echoing – are discussed as strong addition to our current understanding of the variations of cognitive engagement across different learners. In the second section, the significant role of the factors that affect cognitive engagement positively or negatively are associated with learning theories and empirical findings. Findings from these two main areas resonate with other studies (e.g., Qiu & Cheng, 2021; Zabihi & Ghahramanzadeh, 2022) that learners' language proficiency plays a crucial role in learners' oral achievement.

5.1 Cognitive engagement differences between intermediate and advanced learners

The present study found that learners of different proficiency levels adopted different cognitive strategies during the preparation time for speaking tasks. Specifically, intermediate learners chose more "safe" options, like directly using the information from the material to organize a response, while advanced learners tended to utilize logic and paraphrase to reorganize the data they collected. This finding is corroborated by previous research on how language proficiency affects learners' cognitive strategy use. For example, Garcia-Poncea and Tavakoli (2022) reported that advanced learners could offer more diverse logical and lexical choices in their linguistic performance than intermediate and preliminary learners. Finding that learners engaged in different strategies during the preparation stage is interesting, as no existing studies have investigated learners' cognitive efforts during the silent individual thinking period that comes before speaking or group-sharing time.

Apart from differences in strategy use, the depth of information processing between intermediate and advanced learners is another critical area. We found that intermediate learners engaged in shallow information processing, while advanced learners processed information more profoundly and explored more of the given information. This finding can

be explained by Biggs' (1993) surface and deep task approaches. According to Biggs (1993), when learners take a surface approach, they do not exert much effort to process the task cognitively; instead, they rely on rote learning, and their understanding is shallow. In contrast, learners who take a deep approach strive to maximize their knowledge in various ways. However, the terms "surface" and "deep" are defined too broadly to offer a valuable explanation of the degree to which learners' cognitive engagement is. This study, instead, pointed out that the levels of information processing for cognitive engagement can be measured using numbers instead of general terms ("surface" and "deep"). For example, in Task 1, intermediate learners only found one piece of evidence from the story to support their trait choice, while advanced learners found more than one, sometimes three or five pieces of evidence. This finding suggests that high-proficiency learners could process more information within the same time limit as low-proficiency learners (Craik & Lockhart, 1972).

This study examined participants' oral discourse and found preliminary evidence that impromptu speech might reflect whether a speaker is at a high or low cognitive engagement level. However, the limited number of participants needs a cautious interpretation of these results. It should be noted here that impromptu speech is demanding for learners as they need to process the information they have prepared and accommodate the new ideas when they talk simultaneously. Learners can choose to report what they have already done without further explanations. In this study, intermediate learners were found to report what they had prepared and did not introduce new elements. However, advanced learners seemed more confident and competent in expressing new ideas on the spot. To this author's knowledge, the existing literature has not identified impromptu speech as an indicator of cognitive engagement. Not using impromptu speech as an indicator might be because it is hard to distinguish from learners' prepared speech, making it difficult to measure. By comparing the learners' written notes with their recorded speech, this study discovered that advanced learners did not talk according to their notes but said things they thought of in the moment of utterance. This finding highlights the significance of 1) triangulating data and 2) collecting different kinds of data to investigate the complex process of cognitive engagement.

Cognitive engagement during group sharing has been studied widely. It has been reported by many studies that interaction in the group can stimulate learners' cognitive engagement

(See, El-Mansy et al., 2021; Garcia-Poncea & Tavakoli, 2022; Huang et al., 2017; Sharma et al., 2023; Storch, 2008; Watanabe & Swain, 2007; Zabihi & Ghahramanzadeh, 2022). This stimulation occurs mainly because, during group discussions, the interlocutors' views are often different, and can be regarded as new stimuli. Yet, many studies have not studied cognitive engagement during listening and speaking separately. For example, Aubrey et al. (2020) investigated learner engagement during speaking tasks only. However, this study separated learners' cognitive engagement into the listening and speaking stages. Learners who liste tend to be more focused on understanding others' speech. This means that whether other learners' speech during interaction can be regarded as effective input depends on whether the speech is comprehensive for the listener. In this study, we found that the same speech stimulated some learners but not others. Moreover, this study discover that the learners' behaviors might be misleading. Some advanced learners might seem disengaged behaviorally but engage in tremendous mental work. In contrast, some intermediate learners looked attentive but wandered off the topic and did not integrate the ideas they heard with their prior knowledge.

View echoing is a new construct proposed by this study. It often occurs when a learners clearly demonstrate their attitudes towards others. For example, a learner would say "I also agree with your view" or "I do not think what you just said is right". Advanced learners in this study used more view echoing in their responses to show their cognitive engagement than intermediate learners. However, previous studies (e.g., Hiver et al., 2024) ignored this phenomenon but focused more on the discourse markers or logical words learners use in their responses. This issue might be attributed to researchers' focus on studying how learners use these linguistic devices to structure and convey their ideas or arguments instead of the alignment or misalignment of ideas. Perhaps, future studies could dig deeper into view echoing. For example, an investigation could involve analyzing classroom interactions to observe how often and in what contexts students repeat or rephrase their peers' contributions. Researchers could record group discussions to identify the use of view echoing and assess its impact on cognitive engagement and learning outcomes.

5.2 Factors that boost or impede learners' cognitive engagement in speaking tasks

When analyzing the data, this study separated the factors that impact cognitive engagement into individual and group levels. On an individual level, learners have independent cognitive activities without interaction with others, while on a group level, cognitive engagement takes place as a result of learner-to-learner or peer-to-peer and learner-to-instructor interaction (Guo et al., 2023; Kelly et al., 2005). This classification is rooted in a social-cognitive self-regulatory framework (Bandura, 1991; Cleary & Zimmerman, 2012), which states that learners self-regulate their behaviors in a social environment. When learners join a discussion, self-regulatory actions, such as self-observation, self-judgment, and self-reactions, would occur during the learners' silent independent thinking time and interactions with others (Bandura, 1986).

5.2.1 On an individual level

This study found that challenging tasks and cognitive conflicts are the main drivers of boosting advanced learners' cognitive engagement. Designing a challenging task for advanced learners to engage in aligns with Vygotsky's theory of the Zone of Proximal Development (ZPD) (1978). ZPD refers to a space where learners can use their existing knowledge to acquire next-level knowledge. Advanced learners desire to develop their language knowledge further and practice their oral speaking skills. The ZPD created by a challenging task pushes the learners further. Instead, if the tasks are not challenging to the advanced learners, they are likely to lose interest and motivation and, as a result, be less engaged or disengaged. During this process, learners often need to encounter different views and new stimuli, which can be categorized as cognitive conflicts (Tocalli-Beller, 2003). Cognitive conflicts refer to "the disagreement between pair members over a linguistic problem they encounter" (Zabihi & Ghahramanzadeh, 2022, p. 3). The importance of cognitive conflicts parallels observed in this study echoes with the results of Zabihi and Ghahramanzadeh (2022), who found that high-proficiency learners generate more cognitive conflicts moments than low-proficiency learners. However, what makes this study unique is that the learners in the interview explained how they address those cognitive conflicts. High-proficiency learners evaluated these conflicts by weighing up all the evidence they found themselves and others and then potentially reaching a new conclusion. They showed less tolerance for different views but persuaded themselves to accept only one. On the contrary, low-proficiency learners showed more tolerance and fewer reactions to cognitive

conflicts and made less effort to question others. This distinction reflects the divergence of information-processing depth by these two groups of learners, as suggested by many researchers, like Greene (2015) and Craik and Lockhart (1972).

However, task familiarity and unfamiliar words are the primary factors discussed by intermediate learners. These two factors are contradictory as learners hope to be familiar with the task to gain a sense of task control and safety, but they do not hope they know all the words. This finding is consistent with Rahimpour and Hazar (2007). They found that upper-intermediate learners did better in the accuracy and fluency of their L2 oral output when encountering a familiar task, though the responses were less complex. A recent study by Xu and Qiu (2024) investigated how topic familiarity affects learner engagement through information-gap tasks. Twenty-eight participants were divided into information receivers unfamiliar with the task and information providers familiar with the task. Results showed that information providers created more words and spent more time on information-seeking tasks, thus more engaged than information receivers. However, the finding of this study challenges many previous studies on Foreign Language Anxiety (FLA) that reported that the more complex and unfamiliar the task, the more anxious low-proficiency learners would be. For instance, Shirvan and Talebzadeh (2017) found that learners often experienced heightened anxiety when topics were unfamiliar. Furthermore, Bielak (2022) noted that low-proficiency students tended to have higher levels of anxiety, which influenced their oral fluency and decision-making regarding vocabulary and grammar items. In contrast, this study's findings suggest that low-proficiency learners may not necessarily experience heightened anxiety with complex or unfamiliar tasks, indicating a need to reevaluate assumptions about the relationship between task complexity and anxiety in language learning contexts.

5.2.2 On a group level

Group dynamics have been revealed by previous researchers (e.g., Sulis, 2022) as a key factor that impacts the extent to which learners actively involved in interactive activities and thereafter cognitive engagement. This study also found a strong influence of group dynamics by cognitive conflicts between learners, proficiency pairing, learners' pronunciation, and self-efficacy.

To begin with, the results showed that cognitive conflicts (i.e., different views from other group members) still promote advanced learners' cognitive engagement in group sharing. On the contrary, if advanced learners hold similar views, they are less engaged in the discussions. However, when those learners are grouped with others with different proficiency levels, they show variations in their cognitive engagement. In this study, when advanced learners were grouped with learners at their level or more competent learners, they were more engaged but less involved with intermediate learners.

A survey by Dao and McDonough (2018), which investigated the effects of proficiency pairing on students' engagement, shows that L2 proficiency is critical in learners' engagement. Specifically, high-proficiency learners were more cognitively, emotionally, and socially engaged in picture sequencing oral tasks with high-proficiency peers than low-proficiency peers. Zabihi and Ghahramanzadeh (2022) also showed similar results after pairing learners with different proficiency levels: low-low, low-high, and high-high. They demonstrated that pairing with learners with a higher proficiency level together leads to all learners showing higher cognitive and social engagement.

In this study, the two intermediate learners said that others' excellent pronunciation made them more cognitively engaged in the group discussion. Sokyrska (2023) states that "pronunciation is a crucial component of communicative competence" (p. 118). If the interlocutors in the group had clear and correct pronunciation, learners could achieve greater understanding and help reduce listening fatigue, frustration, embarrassment, and misunderstanding (Sokyrska, 2023). However, in the studies of engagement, few studies were conducted on how group members' pronunciation affects learners, especially intermediate learners' cognitive engagement. This dissertation project, therefore, provides meaningful insights into future research directions, such as how pronunciation affects learners' engagement and what pronunciation features boost or impede learner engagement during interaction.

Many researchers report that self-efficacy is connected to learning strategies, performance, causal attributions, and language anxiety (Raoofi et al., 2012; Carmichael & Taylor, 2005; Lane et al., 2004). Self-efficacy is a fundamental component of social cognitive theory and

refers to the “beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments” (Bandura, 1994, p. 73). If learners have low self-efficacy, they are less confident in their capabilities to do something; they will perform less well. In our study we also found that intermediate learners would be more vulnerable to low self-efficacy and low language proficiency. When intermediate learners were grouped with advanced peers, their self-efficacy was reduced, as they felt peer pressure. This finding concurs with Raoofi et al. (2012) who finds that learners with low self-efficacy in a social context use fewer language learning strategies. Thus, the participants in this study were inhibited in investing mental effort in the task and were satisfied with simple ideas they generated efficiently.

Chapter Six: Conclusion

6.1 Limitations and suggestions for future research

Any research, including this dissertation, has some limitations.

First, a case study is often criticized for needing to be more generalizable. However, this exploratory study did not aim to elucidate all learners' behaviors but to demonstrate the potential differences between learners in this particular context. Thus, this study will be valuable despite the small sample size provided that differences (or the lack thereof) are identified and explained.

Another limitation of the present study is that it only covers some proficiency levels regarding cognitive engagement in speaking tasks. Future researchers can consider expanding the proficiency range to include learners at a preliminary level (A1 and A2), as this group might have unique challenges and other specific needs. Furthermore, future studies can also include learners from all or different levels of language proficiency to observe the differences between them. By encompassing a more comprehensive range of proficiency levels, researchers can better understand how cognitive engagement differs among learners.

The third issue is that, in retrospect, this study failed to control for other individual and contextual factors apart from learners' language proficiency, which makes the results less reliable. However, it offers insights for future researchers to control the contextual factors to improve the understanding of cognitive engagement between learners with different language proficiency. Future studies can attempt to keep more variables, such as gender and age, consistent among participants through experiments.

The last limitation concerns participant fatigue due to the scheduling of consecutive lessons. Because of personal scheduling conflicts and research constraints, all four classes were conducted in one morning, which was necessary to meet the research conditions. Although short breaks were provided to help refresh the participants and reduce fatigue, the compact schedule may have led to tired participants and, consequently, lower cognitive

engagement. In future studies, four lessons can take place on separate days, like one lesson a day in a four-day workshop or one lesson a week in a four-week seminar. If learners' physical conditions can improve, the measurement of their cognitive engagement might be more authentic.

6.2 Conclusion and implications

This exploratory case study thoroughly examined the cognitive engagement of high-proficiency and low-proficiency adult L2 learners in speaking tasks. The study revealed significant variations in cognitive engagement among learners of different language proficiency levels. It identified five major themes—Cognitive Strategy Use, Depth of Information Processing, Impromptu Elaboration, Cognitive Engagement During Listening, and View Echoing—across the three stages of speaking tasks (preparation, presentation, and interaction). Advanced learners demonstrated a remarkable ability to employ more advanced cognitive strategies and engage in deeper information processing compared to intermediate learners during the preparation stage of speaking tasks. Additionally, advanced learners displayed more impromptu elaboration during the presentation stage and more active cognitive engagement when listening to others and expressing their attitudes during the interaction stage.

The study also identified and analyzed factors that positively and negatively influence L2 adult learners' cognitive engagement in independent and group work. This study found that cognitive conflicts and word familiarity can boost cognitive engagement for adult L2 learners, albeit functioning differently across the preparation and presentation stages. Conversely, unchallenging tasks and similar views hindered advanced learners, while low self-efficacy significantly impacted intermediate learners.

This study holds several practical implications for practitioners. Despite the abundance of L2 speaking teaching materials and pedagogies, it is imperative for language teachers to undergo training aimed at integrating the comprehension of adult learners' cognitive engagement into their teaching practices (Wang et al., 2014). Through grasping these engagement traits, teachers can choose fitting materials and tasks to effectively engage

students cognitively. Regrettably, there has been limited emphasis on this aspect within teacher training programs.

Given the opportunity to gain insight into their cognitive engagement and the disparities therein, learners, particularly those with lower proficiency, may be motivated to recalibrate their learning strategies, thereby optimizing the learning process (Dao & McDonough, 2018). At times, learners' challenges do not stem from their language attitude, language learning motivation, or language aptitude but rather from their cognitive approaches. Drawing upon others' cognitive engagement can significantly enhance their learning efficacy.

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Appendices

Appendix 1. CUREC approval letter

SOCIAL SCIENCES & HUMANITIES
INTERDIVISIONAL RESEARCH ETHICS COMMITTEE
DEPARTMENTAL RESEARCH ETHICS COMMITTEE

Department of Education
15 Norham Gardens, Oxford OX2 6PY
student.curec@education.ox.ac.uk; staff.curec@education.ox.ac.uk

[redacted]

Department of Education, Social Sciences Division
University of Oxford [redacted] 2023

Dear [redacted]

Research ethics approval

Research title: A case study: Cognitive engagement of Chinese adult EFL learners with different proficiency levels in speaking tasks

Research ethics reference: EDUC_C1A_23_347

The above application has been considered on behalf of the Education Departmental Research Ethics Committee (DREC) in accordance with the University's procedures for ethical approval of all research involving human participants.

I am pleased to confirm that, on the basis of the information provided to the DREC, ethics approval has now been granted for this study.

Please note the following:
Personal data: It is the responsibility of the PI to ensure that all personal data collected during the project is managed in accordance with the University's guidance and legal requirements.

In-person activities: Any data collection involving in-person interactions with participants must have an up-to-date fieldwork risk assessment in place; further guidance is available from the Safety Office's website.

Amendments: Please notify the committee if you intend to make any amendments to the information in your ethics application as submitted at date of this approval, as all changes must receive ethical approval prior to implementation. The amendment form is available on the SSH IDREC webpage.

We welcome feedback on your experience of the ethical review process and suggestions for improvement. Please email any comments to staff.curec@education.ox.ac.uk / student.curec@education.ox.ac.uk or ethics@socsci.ox.ac.uk.

Yours sincerely
Aliya Khalid
DREC member

Appendix 2. Information sheet and consent form

Information sheet

MSc Applied Linguistics and Language Teaching student

[Cognitive engagement in Chinese adult EFL learners with different proficiency levels in speaking tasks]

PARTICIPANT INFORMATION SHEET

Central University Research Ethics Committee Approval Reference: [EDUC_C1A_23_347]

Background information

You are being invited to take part in a research project. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether you wish to take part.

This study aims to investigate cognitive engagement differences between Chinese adult EFL learners with different proficiency levels in speaking tasks. To achieve that, participants need to be Chinese adult EFL learners who now have English proficiency levels ranging from A2 to C1.

It is up to you to decide whether to take part. You can withdraw yourself from the research, without giving a reason, by advising us of this decision. The deadline by which you can withdraw any information you have contributed to the research is 31st July 2024. If you withdraw in the midway of the study or after it, your data will not be stored and safely deleted.

You are going to attend a themed workshop that is made up of four lessons, with each lasting for 40 minutes. The workshop is planned to take place in four days in a month, with each day having one lesson.

Benefits of taking part in the research

Participants can get free chances to practice their oral speaking. Also, they are able to get to know other learners and learn from them.

Possible risks in taking part in the research

1. One big concern is the time commitment. There will be four face-to-face lessons in total in the study. In this sense, you might find it hard to continue taking the lessons because of distance or busy schedules. Perhaps, you might have a time conflict between the lessons and other commitments. If that happens, I will reschedule the lesson and move it to a later time to ensure that everyone can attend.
2. In the speaking practices, learners of different proficiency levels will be grouped together. You might find that you are not that confident talking about your ideas before others. In this case, I will support you and encourage you all the time and tell all the participants that we should encourage everyone to bravely express themselves.

Page 1 of 3

Information storage

Information collection

I am interested in your cognitive engagement in EFL speaking tasks and the factors that boost or impede it. The information you provide will help me better understand EFL learners' cognitive engagement in order to answer my research questions about it. All of the lessons will be video-recorded. Data will include my observation of your task performance in the class, the video recordings, and stimulated recall interviews after the lessons.

The researcher and her supervisor will have access to the research data.

Identifiable data (including consent forms) will be stored in my 365 OneDrive until 1st December 2024. Other research data will be stored for 3 years after publication or public release of the work of the research.

Research data may be transferred to, and stored at, a destination outside the UK and the European Economic Area. Identifiable data will be removed whenever possible, and any data transfer will be done securely and with a similar level of data protection as required under UK law.]

We would like to use this data in future studies and to share this with other researchers (e.g. in online databases). To protect your private information, you will be given a different name in the study.

Future Publications

The findings from the research may be written up in a dissertation, academic publications, conference presentations, or a report commissioned by an external organisation.

We would like your permission to use direct quotations but without identifying you in any research outputs.

A copy of my thesis/ dissertation will be deposited both in print and online in the Oxford University Research Archive where it will be publicly available to facilitate its use in future research/ its access will be restricted.

Data Protection

The University of Oxford is the data controller with respect to your personal data, and as such will determine how your personal data is used in the research. The University will process your personal data for the purpose of the research outlined above. Research is a task that is performed in the public interest. Further information about your rights with respect to your personal data is available from the University's Information Compliance web site at https://compliance.admin.ox.ac.uk/individual-rights.

Who has reviewed this research?

This research has received ethics approval from a subcommittee of the University of Oxford Central University Research Ethics Committee. (Ethics reference: EDUC_C1A_23_347).

Who do I contact if I have a concern about the research or I wish to complain?

If you have a concern about any aspect of this research, please contact [redacted] and we will do our best to answer your query. We will acknowledge your concern within 10 working days and give you an indication of how it will be dealt with. If you remain unhappy or wish to make a formal complaint, please contact the Chair of the Research Ethics Committee at the University of Oxford who will seek to resolve the matter as soon as possible:

The Chair, Aliya Khalid

Social Sciences & Humanities Interdivisional Research Ethics Committee;
Email: ethics@socsci.ox.ac.uk;

Address: University of Oxford, 15 Norham Gardens, Oxford OX2 6PY

Further Information and Contact Details

If you would like to discuss the research with someone beforehand (or if you have questions afterwards), please contact:

[redacted]

Consent form

MSc Applied Linguistic and Language Teaching student

Consent to take part in [Cognitive engagement in Chinese adult EFL learners with different proficiency levels in speaking tasks]

Central University Research Ethics Committee (CUREC) approval reference: EDUC_C1A_23_347

Purpose of Study: This study is positioned as a small, exploratory case study, aiming to differentiate the cognitive engagement of Chinese adult EFL learners with different proficiency levels in an EFL group learning setting.

	Please initial each box if you agree with the statement
I confirm that I have read and understand the information sheet for the above research. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	☐
I understand that my participation is voluntary and that I am free to withdraw at any point until 31st July 2024, without giving any reason.	☐
I understand who have the access to my data, how the data will be stored and what will happen to the data at the end of the project.	☐
I understand that I will not be identifiable from any publications or reports for specific organizations, presentation, conference reports, videos, and websites.	☐
I consent to being audio and video recorded.	☐
I understand how videos will be used in research outputs.	☐
Use of quotations: Please indicate your preference (select *one* option): a) I do not wish to be quoted. **or** b) I agree to the use of quotations in research outputs if I am not identifiable.	☐ ☐
I give permission for you to contact me again to clarify information.	☐
I understand how to raise a concern or make a complaint.	☐

I agree to take part. ☐

I agree that my personal contact details can be retained in a secure database so that the researchers can contact me about future studies. YES / NO

_____	dd / mm / yyyy	_____
Name of participant	Date	Signature

Appendix 3. Agenda of the story-based workshop

Date: 30th March, 2024
Time: 9:00 am -12:30 am
Place: Shanghai, China

Lesson schedule:

9:00-9:15	Brief introduction of the workshop and ice-breaker activity
9:15-9:55	Lesson One
10:00-10:40	Lesson Two
10:40-10:50	Tea Break
10:50-11:30	Lesson Three
11:35-12:15	Lesson Four
12:15-12:30	Time for communication

Appendix 4. Lesson One outline

Lesson One

Story: [Love me, love me not]

Online link: https://learnenglish.britishcouncil.org/general-english/story-zone/b2-c1-stories/love-me-love-me-not-b2/c1

1.Warm-up: [3minutes]

Objective: To recall students' memory of the story

1. Who is Kate?
2. Who is Michael?
3. What is Limeren?

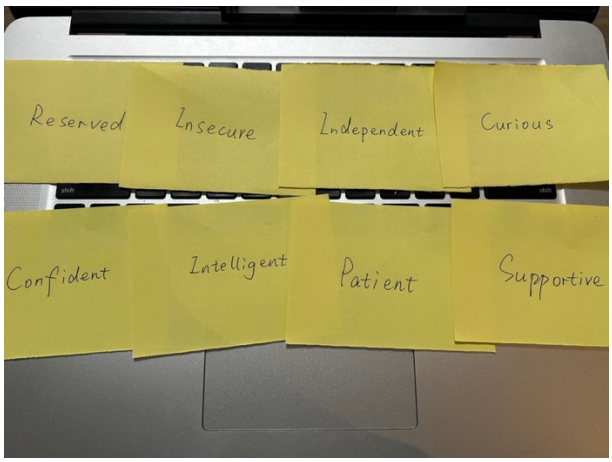
Instructions: I am going to ask some questions about the story. Feel free to answer any of them.

2. Character Traits Matching Game [7 minutes] [intermediate group and advanced group]

Objective: To identify and match character traits with specific characters

Materials Needed:

- Printed character trait cards (insecure, reserved, independent, curious, confident, intelligent, supportive, patient)
- Printed character name cards (Kate, Michael)



Instructions: You will be participating in a character trait matching group activity based on the story. Your task is to match each character trait with the character (Kate or Michael) based on clues from the text. Be prepared to explain your choices and reasoning in the group. People in group of three take turns to use the sentence structures below to make at least **a sentence about Kate** and **a sentence about a Michael** in your group.

I think Kate is (insecure/reserved/independent/curious/confident/ intelligent/supportive/ patient)
because_____.

I think Michael is (insecure/reserved/independent/curious/confident/ intelligent/supportive/ patient)
because_____.

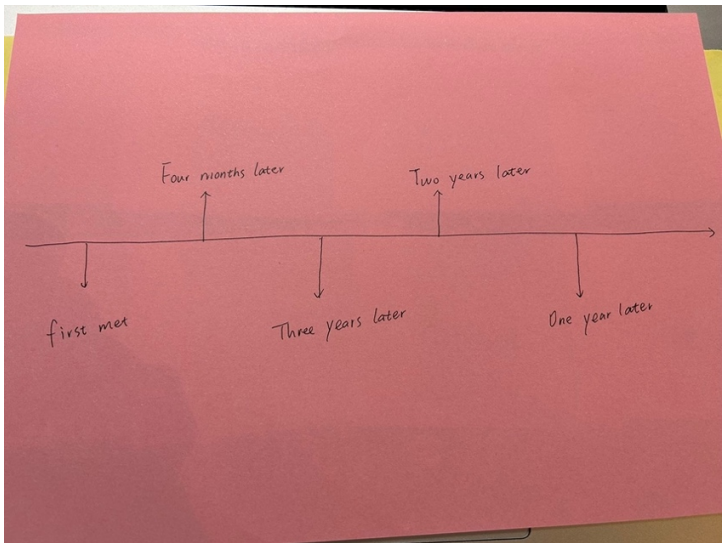
You will have 7 minutes to finish this. Here are the cards.

3. Timeline Summary Activity [15 minutes] [intermediate group and advanced group]

Objective: To create a timeline summarizing key events in the story

Draw a timeline of the story. Summarize what happened in each stage.

First met Four months later Three years later Two years later One year later



Instructions: You will be creating a timeline summary of the story based on specific time intervals provided. Each person in the group is going to choose one time point and present your summary for the section you choose. You'll have 5 minutes to reread the story, organize your thoughts, and present your summary in your group. 10 minutes for the presentation. Here is the timeline for you.

4.Free Discussion [15 minutes] [intermediate group and advanced group]

Objective: Through open-ended questions and dialogue, students have the opportunity to explore the themes, the characters, and the narrative elements in the story.

1. Do you think their feelings for each other are genuine, or are they influenced by the drug's effects?
2. What can we learn from Kate and Michael's story?

Instructions: Now, you will have 15 minutes to discuss these questions in the big group. Feel free to answer some of them or all of them. I will invite some representatives to summarize the ideas discussed later on.

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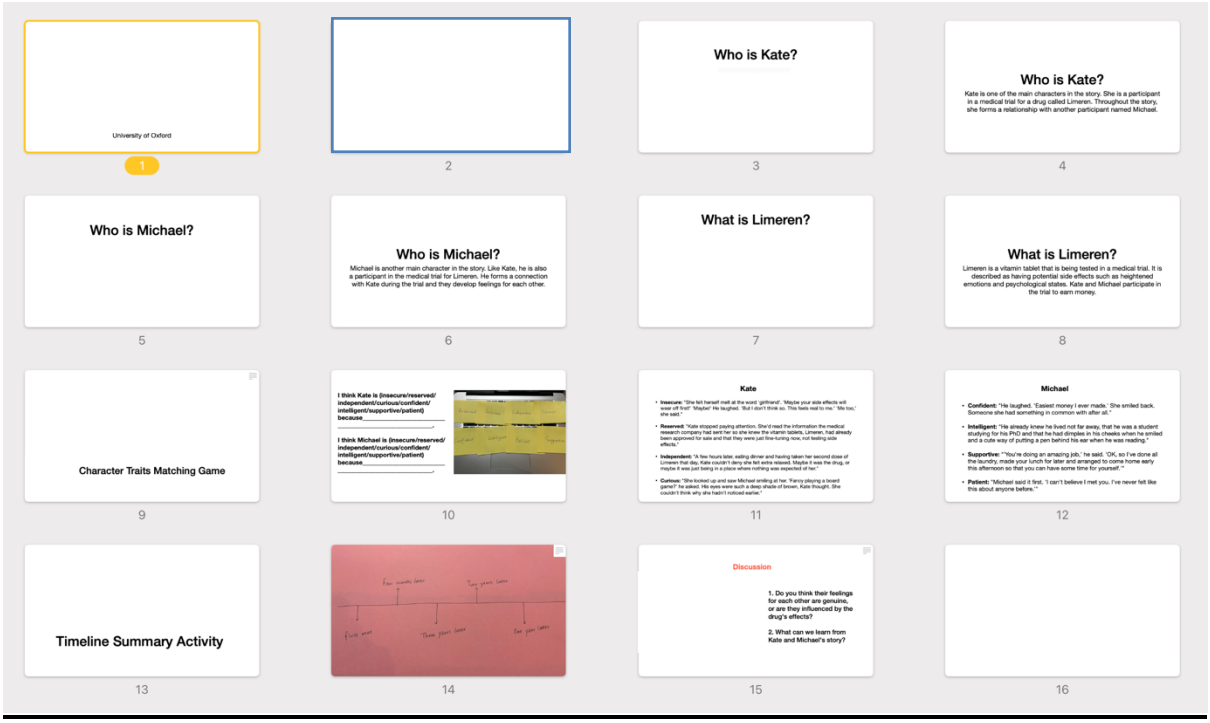


Appendix 5. Lesson Two outline

Lesson Two

Story: The devil's in the details

Online link: https://learnenglish.britishcouncil.org/general-english/story-zone/b2-c1-stories/devils-details-b2/c1

1.Warm-up: [3minutes]

Objective: To recall students' memory of the story

1. Who is Victoria?
2. Who is Peter?
3. Who is the strange man?

Instructions: I am going to ask some questions about the story. Feel free to answer any of them.

2.Character Analysis Activity [7 minutes] [intermediate group and advanced group]

Objective: To analyze whether Victoria is happy or unhappy about her life right now.

Instructions: You will be participating in a character analysis activity based on the story. Your task is to tell create two sentences describing Victoria's attitude towards her life right now based on clues from the text. Be prepared to explain your choices and reasoning in the group. People in group of three take turns to use the sentence structures below to make these two sentences in your group.

Victoria is happy about her life because_____.
Victoria is unhappy about her life because_____.

3. Timeline Summary Activity [15 minutes] [intermediate group and advanced group]

Objective: To let each learner summarize a section of the story

Instructions: The story is divided into three parts. What you need to do is to reread the story and then summarize the part you choose. You'll have 5 minutes to reread

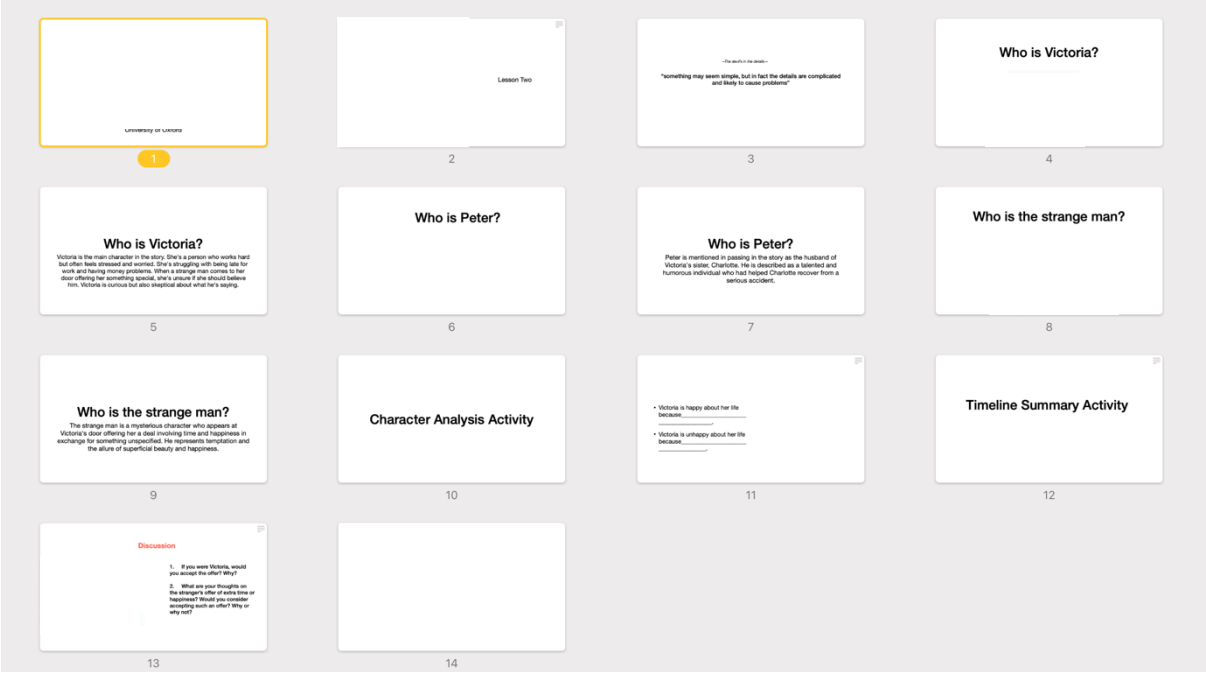
the story, organize your thoughts, and present your summary in your group. 10 minutes for the presentation. Here are three parts.

4.Free discussion [15 minutes] [One big group]

Objective: Through open-ended questions and dialogue, students have the opportunity to explore the themes, the characters, and the narrative elements in the story.

1. If you were Victoria, would you accept the offer? Why?
2. What are your thoughts on the stranger's offer of extra time or happiness? Would you consider accepting such an offer? Why or why not?

Instructions: Now, you will have 15 minutes to discuss these questions in the big group. Feel free to answer some of them or all of them. I will invite some representatives to summarize the ideas discussed later on.



Appendix 6. Lesson Three outline

Lesson Three

Story: True Beauty

Online link: https://learnenglish.britishcouncil.org/general-english/story-zone/b2-c1-stories/true-beauty-b2/c1

1.Warm-up: [3minutes]

Objective: To recall students' memory of the story

1. Who is Steph?
2. What is the name of the app?
3. Who is Matt?

Instructions: I am going to ask some questions about the story. Feel free to answer any of them.

2. Character Traits Matching Game [7 minutes] [Mixed group1 and Mixed group 2]

Objective: To identify and match character traits with specific characters

Materials Needed:

Character trait cards
(meticulous/creative/societal/authentic/fit/attractive/frustrated/kind)
Character name cards (Steph, Matt)

Instructions: You will be participating in a character trait matching group activity based on the story. Your task is to match each character trait with the character (Steph or Matt) based on clues from the text. Be prepared to explain your choices and reasoning in the group. People in group of three take turns to use the sentence structures below to make at least **a sentence about Steph** and **a sentence about Matt** in your group.

I think Steph is
(meticulous/creative/societal/authentic/fit/attractive/frustrated/kind)
because_____.

I think Matt is (meticulous/creative/societal/authentic/fit/attractive/frustrated/kind) because_____.

You will have 7 minutes to finish this. Here are the cards.

Answer:
Steph: **meticulous/creative/societal/authentic**
Matt: **fit/attractive/frustrated/kind**

3.Picture Description Activity [15 minutes] [Mixed group1 and mixed group2]

Objective: Learners are going to summarize a part of the story based on the questions below.

Describe the pictures.

The figure originally presented here cannot be made freely available via ORA because of copyright.

What kind of pictures did Steph used to post on the social media? Can you give some descriptions? What changes did Steph make to the photo? Do you think it is beautiful?

The figure originally presented here cannot be made freely available via ORA because of copyright.

What kind of pictures did Matt used to post on the social media? Can you give some descriptions? What "efforts" did Matt make to create a photo? Do you think it is beautiful?

The figure originally presented here cannot be made freely available via ORA because of copyright.

What is happening in the photo? What did Steph do to create the photo? Do you think it is beautiful?

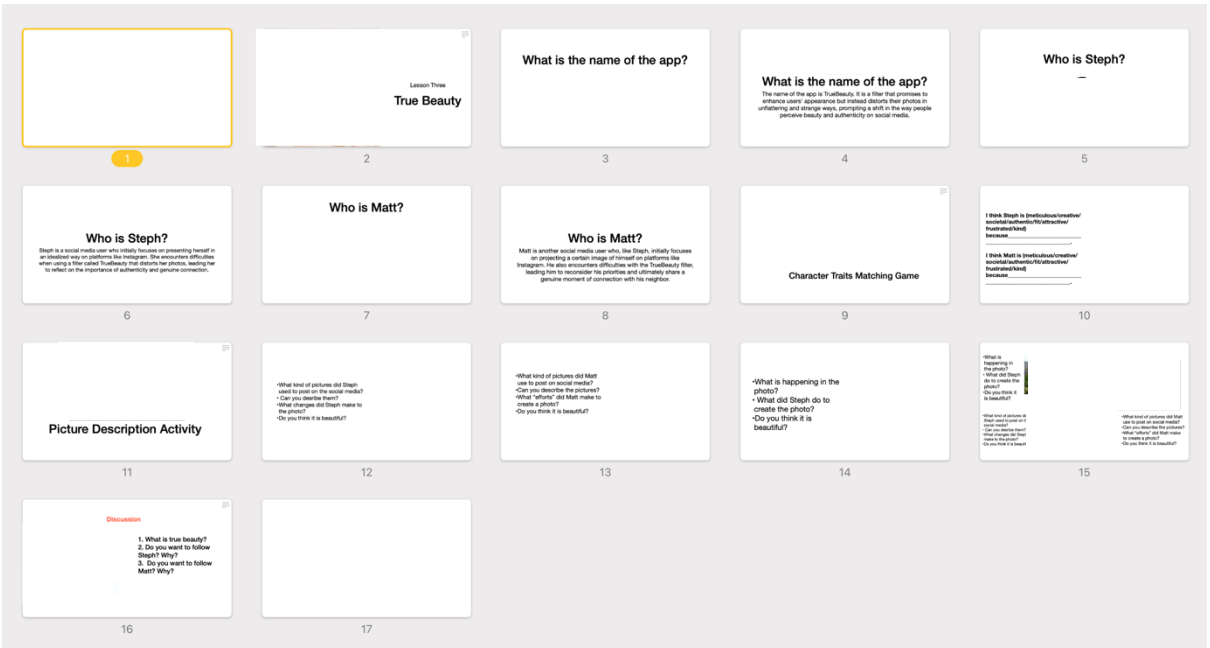
Instructions: In a group of three, everyone is going to pick one picture and share your responses to the questions. After that, if you want to add something to other photos, that's totally fine. You will have 15 minutes to talk about these pictures.

4.Free Discussion [15 minutes] [Mixed group1 and mixed group2]

Objective: Through open-ended questions and dialogue, students have the opportunity to explore the themes, the characters, and the narrative elements in the story.

1. What is true beauty?
2. Do you want to follow Steph? Why?
3. Do you want to follow Matt? Why?

Instructions: Now, you will have 15 minutes to discuss these questions in the small group. Feel free to answer some of them or all of them. I will invite some representatives to summarize the ideas discussed later on.



Appendix 7. Lesson Four outline

Lesson Four

Story: First star I see tonight

Online link:
https://www.google.com/search?q=First+star+I+see+tonight%C2%A0B2%2FC1&client=safari&sca_esv=0938baf10882972d&sxsrf=ADLYWIJC62aern9K4r1ZVRspWzB5u3qmXw%3A1723003330724&ei=wvGyZo3pK8_i2roP_aqpuQo

1.Warm-up: [3minutes]

Objective: To recall students' memory of the story

1. Who is Dr Tomas Streyer?
2. What is Dr. Streyer's experiment?
3. What wish did Dr Tomas Streyer make when he saw the first star?

Instructions: I am going to ask some questions about the story. Feel free to answer any of them.

2. Character Analysis Game [7 minutes] [Mixed group1 and Mixed group 2]

Objective: Let learners answer this question "What kind of person Dr Tomas Streyer is?"

Instructions: Your task is to describe what kind of person Dr Tomas Streyer is based on your understanding of the story. Be prepared to explain your choices and reasoning in the group. People in group of three take turns to use the sentence structure below to make at least **a sentence about your stand** in your group.

I think Dr. Tomas Streyer is _____because_____ _____.

You will have 5 minutes to finish this. Here are the cards.

3. Timeline Summary Activity [15 minutes] [Mixed group1 and Mixed group 2]

Objective: To let each learner summarize a section of the story

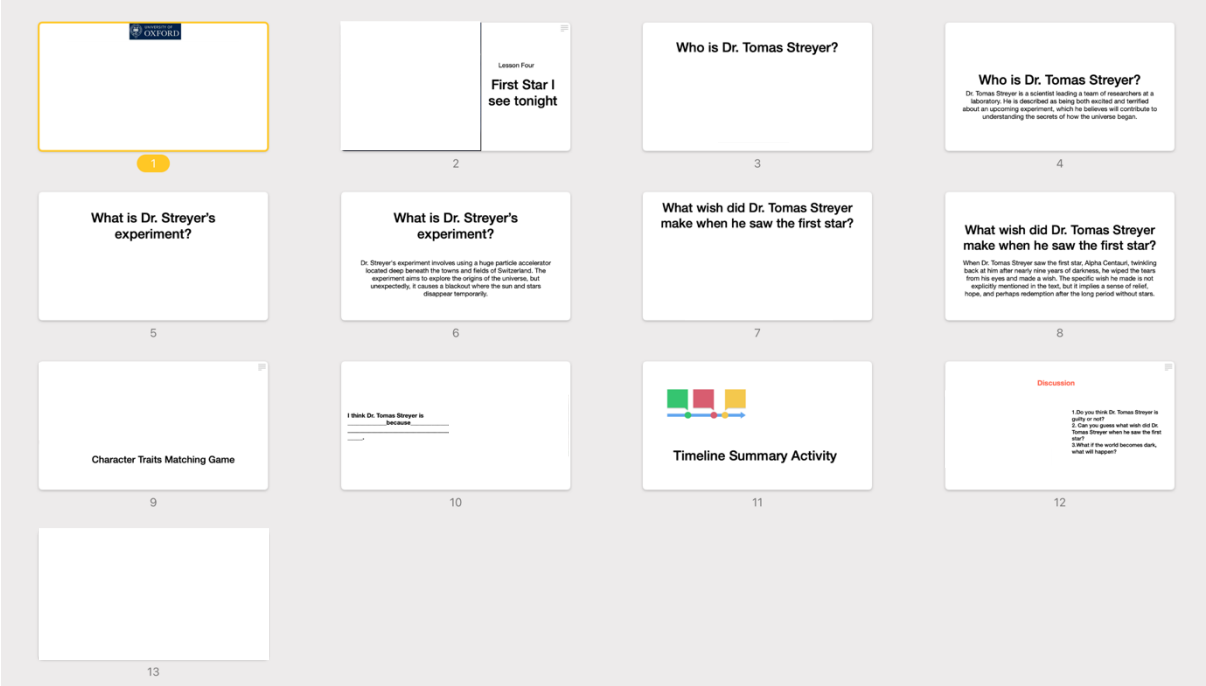
Instructions: The story is divided into three parts. What you need to do is to reread the story and then summarize the part you choose. You'll have 5 minutes to reread the story, organize your thoughts, and present your summary in your group. 10 minutes for the presentation. Here are three parts.

4.Free Discussion [15 minutes] [Mixed group1 and mixed group2]

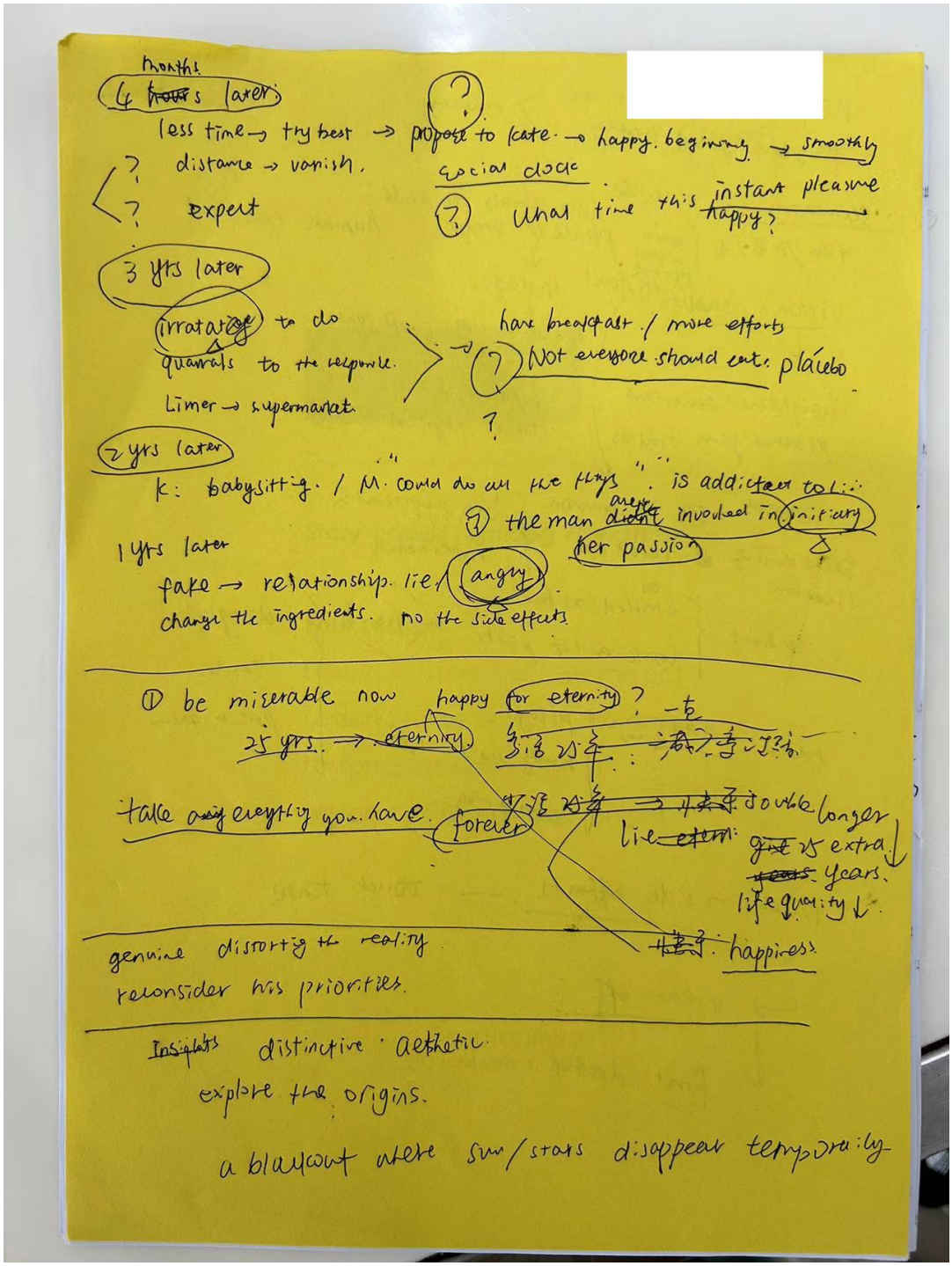
Objective: Through open-ended questions and dialogue, students have the opportunity to explore the themes, the characters, and the narrative elements in the story.

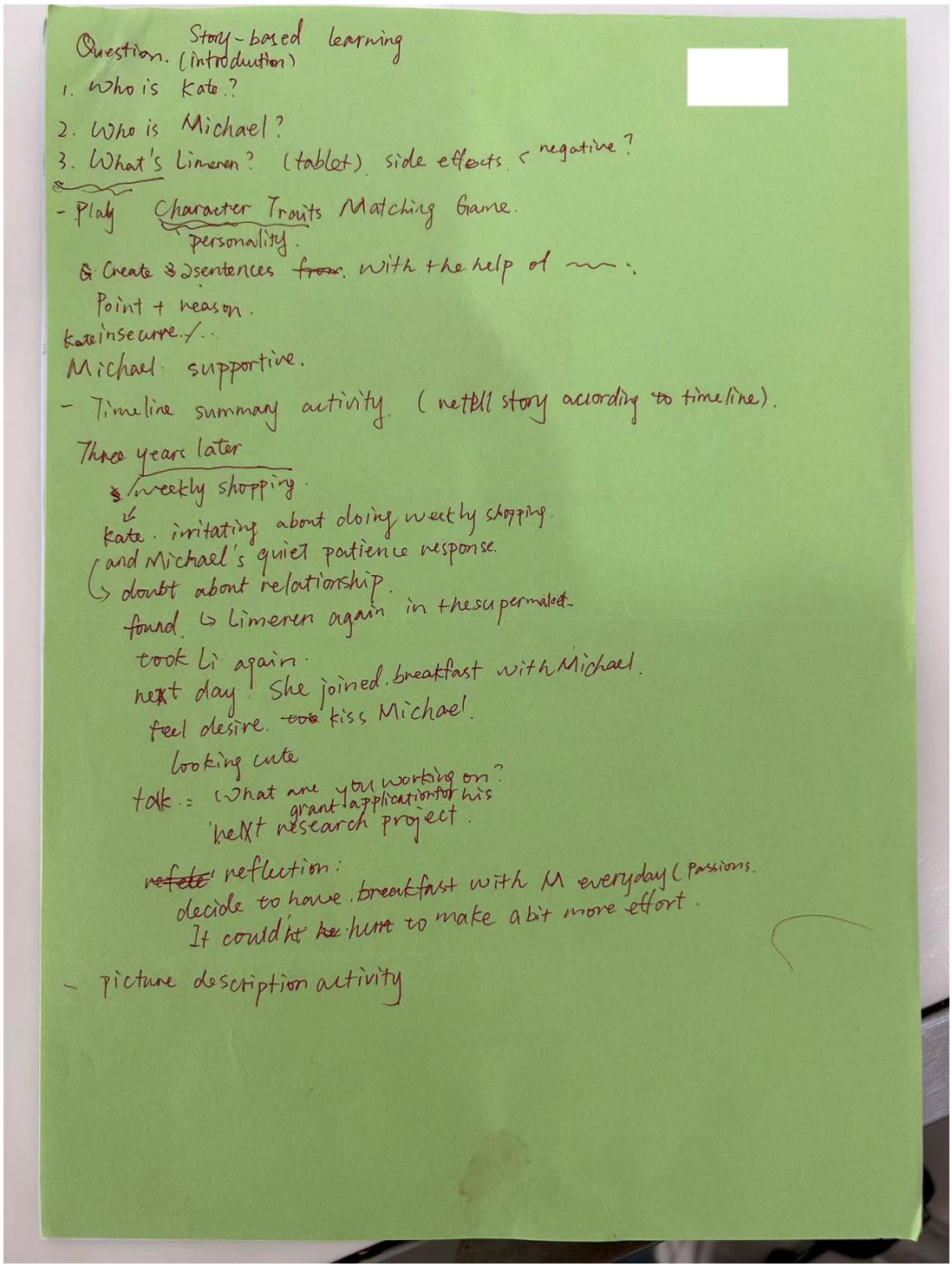
1. Why do people like stars? What are their symbolic meanings?
2. What if the world becomes dark, what will happen?
3. Do you think Dr. Tomas Streyer is guilty or not?
4. Can you guess what wish did Dr. Tomas Streyer when he saw the first star?

Instructions: Now, you will have 15 minutes to discuss these questions in the small group. Feel free to answer some of them or all of them. I will invite some representatives to summarize the ideas discussed later on.

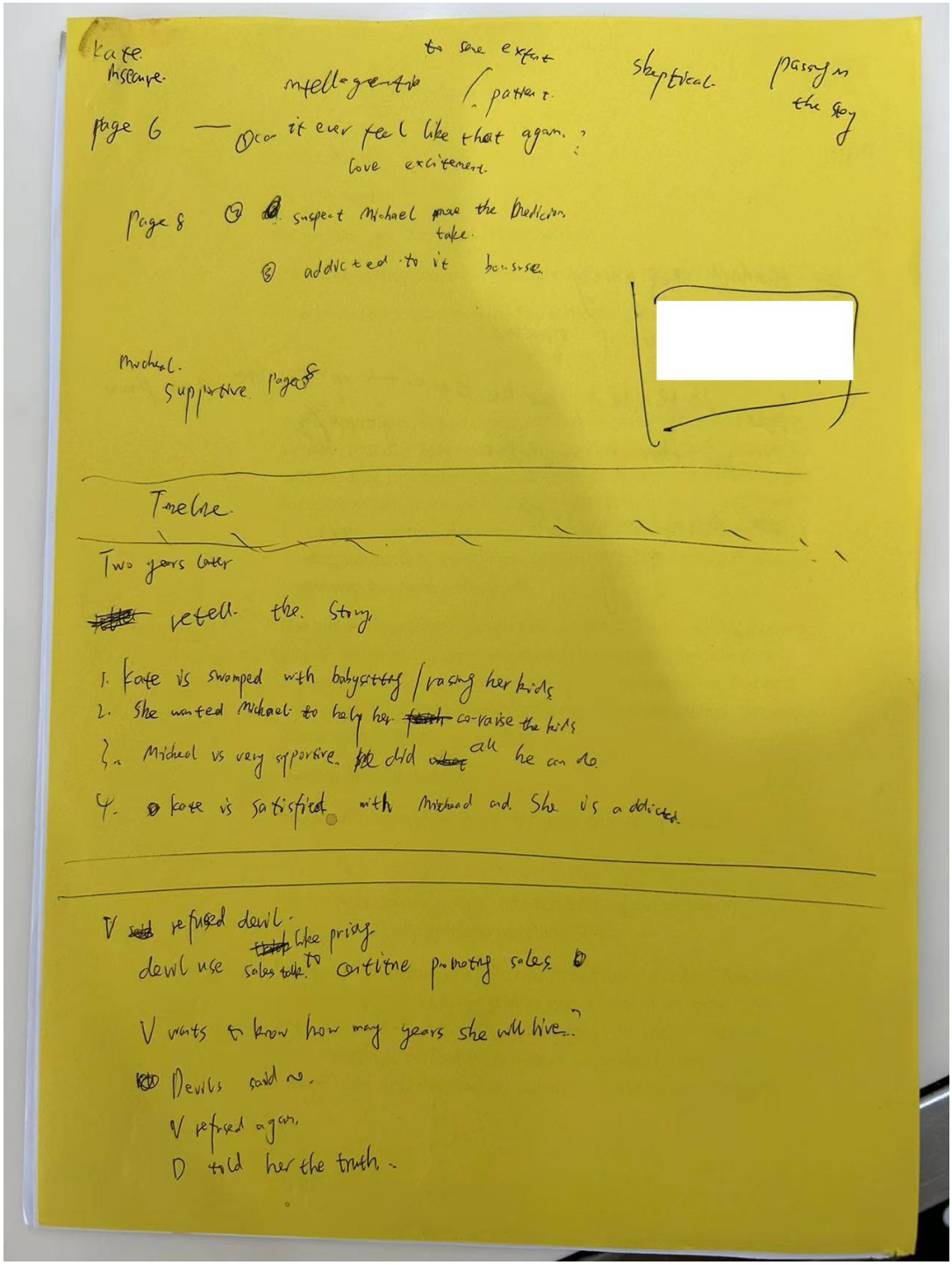


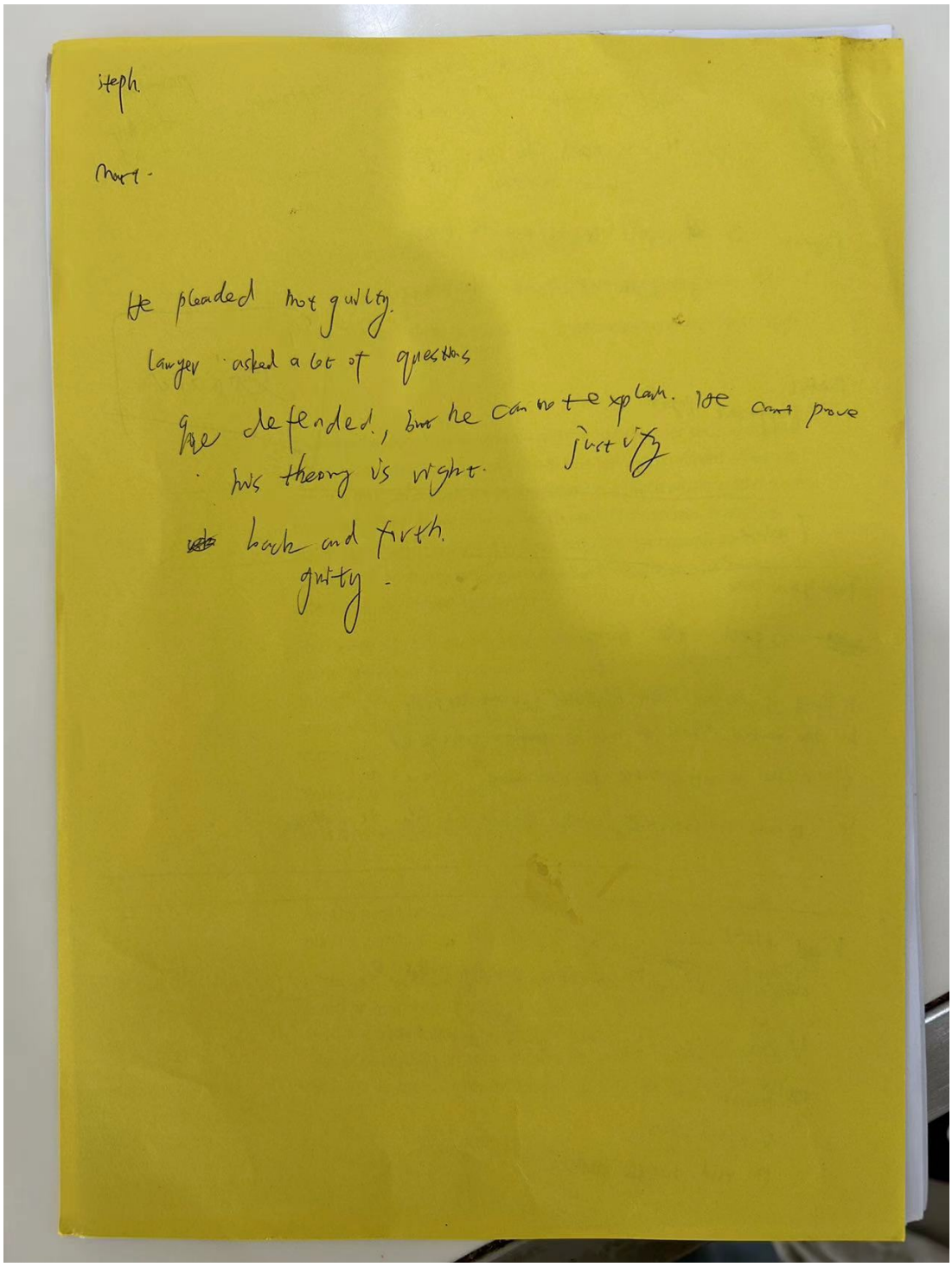
Appendix 8. Examples of learners' notes





Question. Story-based learning (introduction)
1. Who is Kate.?
2. Who is Michael?
3. What's Limeren? (tablet). side effects. < negative?
- Play Character Traits Matching Game. personality.
& Create 3 sentences ~~from~~. with the help of ~~~:
Point + reason.
Kate insecure./..
Michael supportive.
- Timeline summary activity. (retell story according to timeline).
Three years later
$ weekly shopping.
↙
Kate. irritating about doing weekly shopping.
(and Michael's quiet patience response.
↳ doubt about relationship.
found. ↳ Limeren again in the supermarket.
took Li again.
next day. She joined breakfast with Michael.
feel desire. ~~coo~~ kiss Michael.
looking cute
talk.: (what are you working on?
grant application for his
next research project.
~~refete~~ reflection:
decide to have breakfast with M everyday (Passions.
It could be hard to make a bit more effort.
- picture description activity


Kate
insecure.
to some extent
intelligent
/ patient.
skeptical.
passive in the story
page 6 — Can it ever feel like that again.?
love excitement.
page 8 ① suspect Michael gave the Medicine.
take.
② addicted to it because.
Michael.
supportive page 8
Timeline.
Two years later
retell the story.
1. Kate is swamped with babysitting / raising her kids.
2. She wanted Michael to help her co-raise the kids.
3. Michael is very supportive. did all he can do.
4. Kate is satisfied with Michael and She is addicted.
V refused devil.
devil use sales talk to continue promoting sales.
V wants to know how many years she will live.
Devils said no.
V refused again.
D told her the truth.


steph.
Mark -
He pleaded not guilty.
Lawyer asked a lot of questions
He defended, but he can not explain. He can't prove
his theory is right.
just try
back and forth.
guilty -

Kate. 2 sentence / K [redacted]

Michael. \ M.

Limeren.

Kate – insecure. ∵ She always felt unsure about the feelings she had with M. She may contribute all the happiness. sense of well-being and status of love to the function of Li.

Michael – patient. ∵ He ~~respons to~~ will give K a firm response with regard to their love whenever K has some doubt or uncertainty. Faced with the anger of K when she found the Li, he just answered Q & dismiss her concern in patience. Do the housework.

K → got a job

M → go back to lib and bks Rsh prog

~~net~~ M. propose to K

~~Normal Routine~~.
→ Real life.
→ job

less time to meet ∧ still – .

M propose → K.

(ask) another job miserable Now, happy foretemity.

forget niece's birgift.

~~float~~ → scream. pause
scratch 2 hours

Appendix 9. A part of the story-based workshop materials

Story-based Learning Workshop

Four Lessons

Lesson 1 – Love me, love me not

Lesson 2 – The devil's in the details

Lesson 3 – True beauty

Lesson 4 – First star I see tonight

30TH MARCH, 2024

LESSON 1

LOVE ME, LOVE ME NOT

Two people fall in love. But is their experience real? Or is it just a side effect of the medicine they're taking?

Kate looked around the room at the other participants: ten men and ten women all around the same age.

'Thank you for coming today and offering your time to help advance medicine! Limeren, the medicine we're testing, is in what we call the Phase 4 stage, which means previous human trials have shown us the drug is completely safe ...'

Kate stopped paying attention. She'd read the information the medical research company had sent her so she knew the vitamin tablets, Limeren, had already been approved for sale and that they were just fine-tuning now, not testing side effects. She didn't know any of the other people in the group. Presumably, none of them had jobs either or they wouldn't have signed up to a medical study to earn money. But otherwise it was impossible to know if she had anything in common with any of them. She hoped so, or it was going to feel like a very long four days stuck in the hospital-like research centre.

'... known side effects are that some people experience heightened emotions and psychological states as well as a feeling of general well-being,' the lead researcher finished off his presentation. 'We'll be interviewing each of you and taking standard physical tests through the day and night. So if you can all sign the consent forms, we can get started.'

Kate signed and dated her form without reading the information. Hopefully, this was going to be the easiest money she ever made.

'I hope the food's better than last time,' said the guy sitting next to her as he handed in his form.

2

Kate smiled.

'I'm Michael.'

'Kate,' she said. 'You've been here before?'

'As often as they'll let me!' He laughed. 'Easiest money I ever made.'

She smiled back. Someone she had something in common with after all.

...

A few hours later, eating dinner and having taken her second dose of Limeren that day, Kate couldn't deny she felt extra relaxed. Maybe it was the drug, or maybe it was just being in a place where nothing was expected of her. There were books to read, films to watch and even board games and puzzles. It was nothing like her normal days, sending job application after job application and going to stressful interviews that never led to a job.

She looked up and saw Michael smiling at her. 'Fancy playing a board game?' he asked. His eyes were such a deep shade of brown, Kate thought. She couldn't think why she hadn't noticed earlier. To her annoyance, she felt her cheeks going red. 'Sure,' she replied. 'I'm very competitive, though,' she warned.

'Perfect,' he said. 'Me too!'

Was it her imagination or did his cheeks look a bit pink too?

...

For the next two days, Kate and Michael hung out all the time, playing games, chatting and watching films.

'I feel as if I've known you for months, not days,' she said. She already knew he lived not far away, that he was a student studying for his PhD and that he had dimples in his cheeks when he smiled and a cute way of putting a pen behind his ear when he was reading. She couldn't be completely certain, but she thought he seemed to be

making sure he sat next to her for meals and hung out with her whenever he could. Or maybe she was the one who was always looking for him.

'So, do you think you're feeling any side effects?' he asked her one evening. They were sitting on the sofa, watching a film. Michael's knee was almost touching her leg, and if his hand moved even a tiny bit, it would be touching hers. Her heart beat faster and all she could think about was closing the gap and feeling his skin touch hers. She was blushing again, she knew it.

'Any what?' she asked, forcing her mind back to the conversation.

'The side effects of Limeren that they told us about at the presentation,' he said, moving his hand away. Her skin immediately felt cold, as if the presence of his hand had been warming the air between them.

'Oh, I was only half-listening,' she said. 'We still get paid anyway though, right?'

And then he did it. He moved his hand so that it covered hers. A warm feeling went all the way through her fingers and across her skin. She turned her hand over and held his hand. He smiled and leaned towards her slightly.

'Can everyone line up for their evening dose of Limeren, please?' called a nurse. Michael dropped her hand and followed the rest of the group to the nurse's room. Kate couldn't remember ever feeling so happy.

...

'Thank you, everyone, for taking part in this trial. You're now free to go,' the lead researcher said the next morning as the trial ended. 'Any side effects will wear off over the next few days. Those of you who have experienced strong feelings, emotions and happiness will find that the feelings lessen but we don't expect anyone to become

depressed. However, we will follow up with all of you in the next few days to make sure everything is fine.'

'We can have our first date now,' Michael said to Kate. 'Breakfast?'

Over breakfast, they talked and talked. Kate knew she was in love. It was stupid, but it was true. Michael said it first.

'I can't believe I met you. I've never felt like this about anyone before.'

'This does feel amazing,' Kate said. And then a quiet worry that she had been ignoring became too loud to ignore.

'You don't think ...?'

'What?'

'What if it's the Limeren making us feel like this? What was it he said about heightened emotions?'

'There's only one way to find out!' Michael said. 'If you don't want to be my girlfriend any more after a few days, we'll know it was just the Limeren.'

She felt herself melt at the word 'girlfriend'. 'Maybe your side effects will wear off first!'

'Maybe!' He laughed. 'But I don't think so. This feels real to me.'

'Me too,' she said.

...

Four months later

Looking back, a few months later, Kate had to admit, nothing was ever going to be as perfect as those first days together. Eventually, real life had to interrupt. She got a job a few days after the trial ended and he went back to the library and his books and research projects. It was the end of her money worries but also the end of spending all

day, every day together and all the excitement of falling in love. But still, they saw each other when they could and met each other's parents. Everyone expected them to get married, and when he finally produced a ring and asked her to marry him, she felt that old excitement again.

...

Three years later

'You do it!' Kate shouted. She hated doing the weekly shopping. Why couldn't he do it?

'I will, but I can't go right now, I'm sorry,' Michael said quietly. He never shouted, but sometimes Kate found his quiet patience irritating.

'Fine, I'll go then,' she said, slamming the door.

Kate felt as if these kinds of arguments were happening more often. As she walked around the supermarket, she thought about how they'd been before, when they were in love. 'Can it ever feel like that again?' she wondered.

Walking into the health section, she spotted a word she recognised on the shelves. Limeren. The vitamin's name reminded her of a time she was really crazy about Michael. She picked up a box and put it in her basket.

...

When she got home, Michael was already in bed so she ate dinner alone, taking her Limeren tablet with a big glass of water. The next morning, she woke up early as usual, but instead of jumping straight in the shower, she joined Michael downstairs for breakfast.

'Good morning!' she said, feeling a sudden desire to kiss him on the cheek as she sat down next to him at the table. He was eating in front

of a big pile of books, looking cute with a pen behind his ear. 'What are you working on?'

'I'm writing a grant application for my next research project,' he said.

'Oh, good luck! What's the project about?'

After breakfast, she reflected on how nice it had been to see him talking about his passions. She'd forgotten how cute his dimples were when he smiled, she thought. Or maybe she hadn't seen him smile much recently. Anyway, she decided to have breakfast with him every day, since it had been such a lovely start to the day. It couldn't hurt to make a bit more effort, could it?

...

Two years later

The baby hadn't stopped crying for two hours, but now she was calm, her little face peaceful as she slept. Kate sighed with annoyance. Where was Michael? She walked out of the bedroom angrily and went downstairs to find him filling bottles with milk for the baby.

'Well done!' Michael said. 'That didn't sound easy.'

'No!' she said angrily. 'It isn't!'

'You're doing an amazing job,' he said. 'OK, so I've done all the laundry, made your lunch for later and arranged to come home early this afternoon so that you can have some time for yourself.'

Kate managed to smile and say thank you. He really was being very sweet, even if she was too tired to feel grateful or to be nice back. As soon as he had left for work, she reached for the box of Limeren. By the time he came home, even earlier than he'd promised, Kate's smile matched his smile at seeing her.

...

One year later

Kate was putting clothes away while her daughter slept. She picked up one of Michael's favourite jumpers and held the soft fabric next to her cheek. She missed him and he had only been out an hour. Putting it back, she noticed something hard underneath the rest of the jumpers in the drawer. The something turned out to be boxes and boxes of Limeren.

She was shocked to see them even though, by now, she took Limeren every day. And every day she felt madly in love with her wonderful husband. She thought of it as a quick way to those feelings she'd always had for Michael. Everyone said marriage was hard work and she just didn't have the time or energy to work at love as well as her part-time job and a young baby. She found that when she took the tablets, she made more effort at all those small gestures that made their life together nice. If he did something nice for her, she said thank you, but most of all she actually felt thankful. She paid him compliments and noticed things about him. She asked him about his day and remembered things that were important to him. She'd seen nothing wrong with the shortcut. Until now, that is. Now she knew why he had always been so good at doing those same things for her. It was all fake!

Instead of being all smiles when Michael got home, she was angry. Clearly the Limeren only had a limited ability to make everything perfect. Her rose-tinted glasses were definitely off now.

'What are all these?' she asked, pointing to the Limeren packets she'd taken from the drawer and piled up on the kitchen table.

Michael moved closer to the boxes and tried to read the writing. 'They're vitamins, aren't they?'

'Don't act as if you've no idea why I'm asking!' said Kate, angry he was acting innocent. 'These boxes,' she said dramatically, pointing to the pile again, 'are our relationship.'

'Oh!' he said. 'It's Limeren!'

8

'Yes, it's Limeren,' she said. 'I know exactly what they are.'

He looked confused. 'So why are you asking me what they are? I remember the name now you've said – from the place we met, right? – but I've not taken those for years.'

'What?'

'I just ... I don't know. It's better to get vitamins from fruit and vegetables, isn't it?' he said. 'The medical trial company sent us a load of them years ago, but I put them away somewhere and forgot to throw them away. We eat a balanced enough diet so there's no need to take vitamins.'

'What about ...' She felt her voice getting louder and louder, but also something made her feel a slight doubt as she planned the words. It sounded ridiculous. 'What about the falling in love part? The side effects! You're always so wonderful and perfect, the ideal husband. And now I know why!'

'Er ... thanks?' He laughed. 'I know they told us there were some side effects, but we were just joking when we said we fell in love because of the tablets, weren't we? Besides,' he added, turning the box over in his hands, 'they must have changed the ingredients or something because it doesn't say anything on the box anywhere about side effects. See?' He held it out for her to look. 'Maybe they changed the recipe after we did that trial. Who knows?'

He gave her a big hug. 'This perfect husband is all natural, don't worry.'

He went off upstairs to check on the baby and then she heard him banging pots and pans in the kitchen as he started to make dinner. She too examined the boxes and it was true. There was nothing written on the box about side effects, or even on the leaflet inside. The tablets were just vitamins after all. Limeren wasn't a shortcut to love and it never had been.

9

Appendix 10- Sample transcripts of classroom recordings

Excerpt from Lesson Four (22:42-30:08)

Teacher 22:42 So for this action, I think you know the rules. OK. Three questions and I'll let you take the floor.

Zoe 22:54 and the big group?

Teacher 22:56 Yeah, in a big group. OK,

Mary 22:57 I don't think the Doctor Tomas will be guilty because his only wishes is to prove his theory. The other emotion is he's not considered.

Zoe 23:15 I personally agree with you, but I think a little bit differently because Doctor Thomas is doing an experiment. This experience has posted a threat to others just like the the, the, the stars vanished, disappeared to me. He didn't inform them before and so that of course the audience in into a panic and they are confused about that. They didn't explain anything to others. We just want to show his the the improved or supported theory in noting others famous and others effects. So I think he should be guilty.

Leo 23:52 I think he is absolutely guilty because you know he did the experiment experiment and yeah I think he's still the star. Yeah definitely because if he didn't do this experiment yeah the star will be normal started the pre presents right. Will be normal. So based on the fact his opposite beauty, no matter how he explains,

Lucy 24:28 yeah I agree because although I appreciate his passion and dedication to science, however he did cause a like a threat to the existence of human being.

Kate 24:46 I'm curious about after his experiment, what will benefit others?

Zoe 24:55 Yeah, maybe he just the conducted this experiment out of his art curiosity, out of his passion, but not all of us. So in that way, he's obviously selfish.

Zoe 25:12 OK, hot. Let's move on to the second one, You just ask at first about this question,

Leo 25:34 I think it will be with, you know, more stars. There are absolutely there must be more stars, not the only one. And I think, you know, these thoughts will first come into his mind. Yeah. Because you know I think he was under so much pressure He
he was called by many people. Yeah. And and even I I think he will he he was he he failed to very guilty. Yeah, I think he will. He need to release this.

Zoe 26:17 I think maybe his next wish is that it's based on the the the what happened now it happened it. That means, he said that it would take 1596 nights to pass the nearest star in another five, 1590, six, 94 that stars like to reach the earth again. So maybe his next wish is that this kind of things will happen maybe 1596 years or longer. This later because he has showed he has proved his theory about the nearest star. How about the next star? Maybe if you want to make a wish about that,

Lucy 27:00 You mean the wish to that he can continue to strive for her, for her dream, to understand the secrets of how the universe begin.

Mary 27:13 Yeah, I thought he when he saw the first star he will get, he will wish that he can deliver a paper in nature. Absolutely.

Teacher 27:39 Very sharp insight.

Zoe 27:45 If the world becomes that, what will?

Lucy 27:52 Because the, the life, the living things cannot live without lights.

Mary 28:02
Yes. So I'm not only one think so. I think all animals will die because of the photosynthesis

Teacher 28:13 Like chain effects.

Mary 28:15 Because all energy in this earth is come from some. So if if it would be dark, we will all die.

Leo 28:26 Thomas will be internal testing.

Teacher 28:40 Like like like, what's your reason?

Leo 28:45 basically. Yeah. Affects everyone's life on the earth. Yeah, in the negative.

Teacher 28:58 Now we need to ask Elon Musk to take us to the Mars.

Lucy 29:04 Wow. Yeah, maybe just because some like changing the universe will be transferred to another another space or something else. Who knows what will happen.

Mary 29:18 And that circle in human silver warming. Civilization. Civilization.

Zoe 29:26 Yeah, you circle. Yeah, maybe. I agree with both of your ideas. Maybe if the world becomes stuck, maybe before the world becomes stuck after this kind of thing. A lot of research would would start thinking what will happen if the world become dark. So they would do a lot of efforts and they may explore the other outer space or they may think about it. They may create the sun. You have to make it light again or they may do something appears to prevent these things happen. Yeah, I think the human efforts will defeat all of those. Difficult,

Teacher 30:06 yeah. So when I think when the world becomes dark, I would say ohh, there will be like fewer and fewer resources for humans. So when there's limited resources, there will be greater competitions between humans, right? So maybe there will be wars and some code and bloody things. Something but violence. So it's it would become terrible. So I cannot imagine more than that. But it seemed like,

Lucy 30:41 yeah, so I think it's the power of the universe we can. Human being cannot resist the power of nature or the universe. Better power, Yes. Sorry.

Teacher 30: 48Yeah, maybe the human will evolve into a kind of creature can be accomplished. Accustomed to the dark, they can survive as well.

Appendix 11. Interview questions

Interview questions

General questions about engagement

1. When you are doing the practices, to what extent do you feel focused on the tasks?
2. When you are doing the practice, do you think what helps you to be focused or engaged in the task?
3. Do you think you need additional help from language to support your responses, like vocabulary, pronunciation, grammar, sentence structure, or logic?

Mental efforts and strategies for specific tasks

4. What efforts did you make to deal with the first practice?
5. What efforts did you make to deal with the second practice?
6. What efforts did you make to deal with the third practice?
7. When you are doing the practice, are there any difficulties for you?
8. What strategies or approaches did you take to overcome these challenges? What led you to take this approach?
9. Can you describe the decision-making process for using these strategies?
10. Do you feel that you learned anything new from that?

Interactions

11. How did you interact with people with higher/lower proficiency during this task?
12. What do you think of other students' responses? Did you learn something new?
13. Did you adapt your communication style in any way?
14. Did it help you feel more involved?

Special moments

15. I noticed you did not have much to say. What happened?
16. Could you tell me, what are you thinking at this time point (I will change this question a little bit based on the signs of the following special moments shown by participants)?
17. Do you think what caused you to have these special moments?

****Special moments****

1) Mental effort
2) deliberate, selective, and sustained attention
3) verbal manifestations
4) Peer interactions
5) students' questioning
6) hesitations
7) repetitions
8) volunteering answers
9) exchanging ideas
10) offering feedback
11) providing direction
12) informing
13) explaining

14) private speech
15) exploratory talk
16) body language
17) facial expressions
18) eye moments
19) body positioning
20) special words/symbols in the notes

These moments are chosen based on Hiver, P., Al-Hoorie, A. H., Vitta, J. P., & Wu, J. (2024). Engagement in language learning: A systematic review of 20 years of research methods and definitions. *Language teaching research*, *28*(1), 201-230.

General comments

18. Is there anything else you want to add to the lessons or the activities?

Appendix 12-Sample transcripts of stimulated-recall interviews

Excerpts from the interview with Zoe

Teacher: 10:17 Ah, okay, and then I'll share it with you, do you still have that impression of that note? I'm going to take a look at you, I should be able to see this part of your notes now, ah, in this notes section, I'm uh, there's 200 million, and then this should be the first page.
Zoe: 10:23 Okay, huh. Yes. Right.
Teacher 10:36 This is the first page, uh, you shouldn't have that question on this note, because I see that you are divided into that four months later, then three years later, two years later, and then follow this, this is the second task, okay, the first task, in fact, you didn't take notes at that time, And then uh, there's one more.
Zoe 10:38 right. To that. To the second mission. Right. No, no, the first one I did the first one, I was on top of my text.
Teacher 10:57 First. Ah, I'll look for you on the text, is this the page, because I have a screenshot to show you this is this? Is this one based on one or the other?
Zoe 11:00 right. Well? Belch. Well, it's not just no, it's an adjective that I've clearly marked on the top with a supportive or something, and I'll write it to the side.
Teacher 11:10 Isn't this OK? Ah, I saw it right away, I think it should be this page. Good. This is the one. Okay, let's talk about this question, you said this micro supportive, you were processing this text message at that time, how did you deal with it when you read it, it was the details of this part?
Zoe 11:32Huh? Well? This should be my corresponding.,This shouldn't be Michael.,This should correspond to the name of the heroine.,I forgot about him.,You see, uh, there's no effort to。
Teacher 11:47 Okay.
Zoe 11:52 is also mainly a paragraph, it must be about some contribution he made to this period of marriage, and then what? He will, for example, he will give him some support, and I will do some keyword positioning.
Teacher 11:58 Hmm?
Zoe 12:05 Give him some praise or something, it shows that he is very supportive, and then, he can remember all the things that are important to him, and then I will feel that he can correspond to intelligent, but what, I put a question mark on it, in fact, I have doubts that it does not necessarily have to correspond to this adjective.

Teacher12:18Internet. Well, okay, good, okay, and then when you have doubts in the process, what do you think about at that time, what are the things that you will go, and will you go swimming to find details? Or did I just question when I questioned, but I didn't take the next step of this thinking activity.
Zoe 12:39 It was when I felt that I was skeptical, I might think, is there any other aspect that can reflect it intelligent, and then I found that when it seemed to come down, I also felt that it didn't seem to prove the adjective in particular, and then I put a question mark to prove why the teacher put the adjective intelligent here.
Teacher 12:46 Hmm?
Zoe 12:59 I'll be thinking about this.
Teacher13:00 is that you are thinking about his reasonableness, that is, whether there is intelligence or not, and then at that time, uh, maybe I thought a lot, and then on the one hand, it may be in the original text, the details may not be found by me, and there is a possibility that I didn't think that this detail was related to intelligent at that time.
Zoe 13:03 right. Well? Well?
Teacher 13:18 Is there both?
Zoe 13:20Yes.
Teacher 13:21 yes, okay, okay, and then this activity, OK, alas, okay, then we can, uh, then I'll just take this part of this lesson and I'll show you a video clip, ha, let's take a look, this is this place, this place should be discussing.
Zoe 13:22Huh?
Teacher13:42OK, I'll take a look at this treats, it seems to be OK when treats, OK treats, okay, okay, there's no big problem, so let's take a look at this summary, what about this summary part? I just have a note section and want to ask again, because in fact, I have just said a lot about this summary part, and the summary part is just very interested in your notes, that is, there will be time on your notes, and then what? There will be some of the following keywords, and then there will be this question mark, and then there will be that uh, that's the little one like that arrow, and then there will be some words, which are circles, and then some of the triangles are these symbols, and when you think about it, what function does it play is you.
Zoe 13:44Huh? Uh-huh. Well? Right. Arrows and stuff like that, huh. Right.
Teacher14:27 Why do you want to use these symbols to mark them?
Zoe 14:29 Ah, that's right, that is, first of all, I am a summary part, it actually contains 4 parts, but in fact, when I summarize myself, it should be only in the first part, it

should be my label to cover, what should be later, the first part is my summary, and then myself.

Appendix 13- Framework of Self-Regulated Cognitive Engagement (FSRCE)

The figure originally presented here cannot be made freely available via ORA because of copyright.
The figure was sourced at Alam, M., & Mohanty, S. (2024). Framework of Self-Regulated Cognitive Engagement (FSRCE): Integrating self-regulated learning and cognitive engagement in education. Educational Psychology Review, 36(1), 1–23. https://doi.org/10.1007/s10648-023-09783-1