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Using Non-Lexicalised Pauses as Self-Assessment Metacognitive Strategies to Enhance Speech Production

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ABSTRACT

Speech experts consider non-lexicalised pauses as speakers' cognitive actions to monitor, evaluate and enhance their speech outputs. Although these actions are linked to self-assessment, speakers' self-assessment skills in English as a Second Language-speaking contexts are often confined to how they utilise assessment rubrics, checklists and teacher commentaries. Since, in reality, speaking is impromptu and individuals have limited access to these assessment standards and commentaries, this exploratory case study aims to unpack the self-assessment metacognitive strategies that intermediate and low proficiency level students use while employing their non-lexicalised pauses in impromptu speech. Through purposive sampling, three participants from each proficiency level were selected, and they partook in two ten-minute video-recorded group discussions. The non-lexicalised pauses in their discussions were the reference points for the stimulated-recall interviews; meanwhile, video recordings supplemented their interview responses. A conceptual framework based on O'Malley and Chamot's (1990) metacognitive strategies and Kormos's (2006) speech production model was adopted from past studies to thematically analyse the research data. The analysis found Case I (intermediate proficiency) participants utilised two self-assessment metacognitive strategies— organisational planning and self-monitoring—whereas Case L (low proficiency) participants used one strategy—self-monitoring—while employing the non-lexicalised pauses. Participants' L2 mastery and contextual factors significantly influenced their choice of strategies. Despite some limitations, the findings indicated that participants in Cases I and L applied their readily accessible resources to self-assess impromptu speech metacognitively. Additionally, the analysis suggests that speech dysfluency should not be deemed speakers' speaking incompetence but rather self-assessment strategies to improve their speech quality.

Keywords: Self-Assessment; Metacognitive Strategies; Impromptu speech; Non-lexicalised Pauses; English as Second Language

INTRODUCTION

In English as a Second Language (ESL) speaking assessments, evaluators often perceive speakers as incompetent when speeches become dysfluent (De Jong, 2018; Kahng, 2014). Such a superficial judgement should be avoided since speakers monitor speeches, gauge speech effectiveness on interlocutors, and examine interlocutors' responses (De Jong, 2018; Kormos, 2006) by precisely employing dysfluency markers (Dörnyei & Kormos, 1998; D. R. Kim, 2019; T. Kim, 2021; Manzano, 2018). Recent psycholinguistic studies confirm these processes in relation to L2 utterance and cognitive fluency, discussed in the following section.

Hence, beyond solely considering listeners' perception of a speaker's speech, ESL speaking assessment should begin accenting the speaker's dysfluencies as their self-initiated internal evaluation for improving speech quality. This approach aligns with *assessment for learning* practices, which emphasises the speakers' critical engagement with the quality of their own learning output, such as through self-assessment (SA) (Bourke, 2014; Panadero et al., 2015). Scholars widely recognise SA as a complex metacognitive process (Panadero et al., 2015; Yan & Brown, 2017), as it reflects Flavell's (1979) key components of metacognition: metacognitive knowledge, metacognitive regulation, and metacognitive experience.

Metacognitive knowledge includes one's awareness in three areas—declarative (self-knowledge), procedural (task-related knowledge), and strategic (knowledge of useful strategies)—which collectively influence cognitive processes. Metacognitive regulation consists of deliberate actions aimed at monitoring and guiding one's thinking, including planning (selecting a strategy), monitoring (assessing the strategy's effectiveness), and evaluating (reviewing and adjusting strategies for improvement). Metacognitive experiences, conversely, are insights and skills gained from ongoing cognitive efforts. Similarly, as an internally-driven form of assessment, SA embodies these components. Metacognitive knowledge in this context reflects an awareness of one's strengths, weaknesses, and strategies for learning. Metacognitive regulation manifests in the ability to plan, monitor, and evaluate one's learning processes. Lastly, metacognitive experiences are the reflective insights and skills gained through SA of one's learning.

In other words, by engaging students in continuous monitoring, reflection, and strategy planning to enhance their learning outcomes (Yan & Brown, 2017), SA exemplifies a complex metacognitive process. It fosters a deeper understanding of their learning and ultimately leads to improved performance. During this practice, students refer to feedback resources that are not accessible in other external assessments. This feedback can be external, such as teacher commentaries and assessment tools, or internal, such as emotions, goals, ideas, values, and prior knowledge and experiences (Dolosic et al., 2016; Yan & Brown, 2017). Nonetheless, most SA practices in ESL speaking often explore students' SA abilities using assessment tools (Babaii et al., 2016; Khonamri et al., 2021; Maria, 2021; Trofimovich et al., 2016).

Consequently, it remains essential to comprehend how students self-assess their learning via accessible feedback, mainly when assessment tools are restricted or non-existent, such as during impromptu speech production. In such scenarios, students must adapt their speaking in real-time, relying on accessible feedback. Ultimately, this practice fosters self-sufficiency and helps students to self-monitor and modify their thoughts and language independently. Prominent SA scholars (Bourke, 2014; Panadero et al., 2015) have recommended investigating this area of study to gain insights into individuals' critical thinking during SA, specifically from cognitive and metacognitive viewpoints. This study, however, targets metacognitive strategies as they empower students to engage in planning, monitoring, and evaluating their speech production, facilitating

more independent language development. This endeavour also could bolster understanding of SA as a complex metacognitive ability.

Therefore, this case study seeks to identify the SA metacognitive strategies that intermediate and low-proficiency ESL students in a selected Malaysian secondary school apply while employing non-lexicalised pauses in their impromptu speech discussion. To provide foundational insights into these strategies, the following section delves into the cognitive processes and the accessible feedback involved when speakers employ non-lexicalised pauses in L2 speech production. These pauses not only indicate cognitive fluency but also reflect the underlying metacognitive strategies during informal SA.

NON-LEXICALISED PAUSES AS INDICATIONS OF COGNITIVE PROCESSES IN L2 SPEECH PRODUCTION

Psycholinguistics studies highlight a strong link between L2 speech production and cognitive fluency, with non-lexicalised pauses like silent pauses, hesitations and drawls indicating cognitive processing (Gürbüz, 2017; T. Kim, 2021). These pauses allow L2 speakers to monitor grammatical accuracy, pronunciation, and structural coherence (Kahng, 2014; T. Kim, 2021; Kormos, 2006, 2014). Although the primary focus is on cognitive fluency, these studies offer significant insights into accessible feedback that stimulates speakers' cognitive processes, such as monitoring and repairing, thereby enhancing speech quality.

Building on the role of pauses in cognitive processing, L2 knowledge provides crucial feedback for speakers to monitor and adjust their speech. As proficiency increases, speakers prioritise information accuracy to meet communicative demands (Kormos, 2006), while limited L2 knowledge focuses on language accuracy (Kormos, 2006, 2014). For example, Tharmalingam et al. (2024) found proficient speakers using interlocutors' non-verbal cues to enhance speech clarity. While the study suggests group seating facilitated this focus, Kormos (2006) noted that automated L2 procedural knowledge allows proficient speakers to utilise L2 rules with minimal cognitive effort. Consequently, this ability directed their attention to interlocutors' facial expressions and ensured speech clarity.

The distinction in feedback use is further evident when comparing low-, intermediate and high-proficient speakers' lexical strategies. While low-proficient speakers, limited by L2 knowledge, often prioritise lexical accuracy and replace erroneous words with accessible alternatives (D. R. Kim, 2019; Kormos, 2014), a similar constraint led intermediate speakers' approximation to express ideas, despite their awareness of lexical inaccuracies (Manzano, 2018). However, studies by Kahng (2014) and Tharmalingam et al. (2022) show that proficient speakers select context-appropriate vocabulary from a range of options, while low-proficient speakers, potentially due to narrower vocabulary, as stated by Nourdad and Hosseini (2022), rely on basic corrections. Therefore, the flexibility in lexical strategy is dependent on extensive vocabulary in long-term memory (Gürbüz, 2017; Kormos, 2006).

Additionally, L2 speakers' strategies in response to speech errors reveal the impact of accessible feedback across proficiency levels. Intermediate speakers, as observed in Simpson et al. (2013), T. Kim (2021), Manzano (2018) and Mesch and Schönström (2023), make post-articulatory corrections when their utterances fail to align with their intended meaning. Thus, speakers optimise their intended meaning as internal feedback to evaluate and enhance the utterance's effectiveness. In contrast, low-proficient speakers often struggle with grammatical and structural coherence, abandoning their original message and relying on strategies such as literal

translation or code-switching (Kahng, 2014). These strategies, however, are applied by low-proficient speakers in Gürbüz (2017) and Tharmalingam et al. (2022) for word retrieval issues.

A preliminary overview might suggest that strategy choice is influenced by the storage of L1 and L2 concepts in semantic memory, with L1 lexical items being more readily activated due to less automatic L2 processing (Kormos, 2006). However, task type also plays a crucial role. Studies by Kahng (2014), Gürbüz (2017) and Tharmalingam et al. (2022) show that low-proficient speakers applied similar strategies across different challenges, largely due to task variations. Interactive tasks (Gürbüz, 2017; Tharmalingam et al., 2022), unlike monologues (Kahng, 2014), emphasise communicative goals, prompting speakers to use strategies like literal translation and code-switching for issues like word retrieval difficulties.

Similarly, task demand shapes accessible feedback mechanisms, especially in high-pressure contexts. De Jong (2018) found that such tasks prompted L2 speakers to engage in more frequent self-corrections, illustrating how urgent conditions influence feedback-driven repairs. Additionally, the scholars indicated that communicative goals increase awareness, leading speakers to monitor their speech for alignment with their intended messages. When discrepancies arise, L2 speakers activate monitoring loops and repair mechanisms to rectify errors (De Jong, 2018; Kormos, 2006). These adjustments reflect that task demand, coupled with communicative goals, enable L2 speakers to adapt and refine their speech strategies based on task requirements and proficiency level.

Beyond proficiency and task demands, explicit pre-task instructions can direct speakers' attention to specific language production aspects. Sadeghi and Pourhaji (2021) demonstrated that low-proficient speakers prioritised grammatical accuracy when given such instructions, directing them to adopt repair strategies focused on grammar. These findings indicate that accessible feedback is dynamic and modulated by proficiency, task demands, and instructional guidance. Overall, these studies underscore the importance of accessible feedback as a critical mechanism in L2 speech production. By facilitating real-time adjustments, accessible feedback enables L2 speakers to navigate cognitive challenges, refine their speech output, and achieve communicative effectiveness independently, highlighting the relevance of this study's focus on accessible feedback in L2 speech SA.

SELF-ASSESSMENT IN L2 SPEAKING AND UNDER-RESEARCHED AREAS

While English-language academics are keen to understand students' potential to self-assess (Hosseini & Nimehchisalem, 2021), specifically in speaking, they embrace Boud's (1999) SA definition: students explicitly seeking external feedback to assess and improve the quality of their learning products. Students' SA abilities are explored by comparing students' SA scores with external evaluators' scores. Some studies showed positive correlations between these scores (Babaii et al., 2016), while others reflected negative correlations due to the Dunning-Kruger effect: low-proficient speakers overrated their speaking, while proficient speakers underrated their speaking (Trofimovich et al., 2016). However, the impact of L2 proficiency on SA in speaking remains uncertain.

In addition, researchers explore how students utilise assessment tools, such as teacher commentaries, rubrics, and checklists, to build their self-regulated learning skills (Khonamri et al., 2021; Maria, 2021). The extent to which assessment tools facilitated students' speaking SA is mirrored in improvements across subsequent tasks. Despite past studies highlighting SA advancements, their scope is restricted to analysing how students incorporated assessment tools

into their SA. Nevertheless, most speaking is done impromptu in reality, without speakers having access to assessment tools to help them evaluate their speeches. Some SA studies claim that internal (goals, values, emotions, and past knowledge and experiences) and external feedback (task demand) influences students' SA (Dolosic et al., 2016; Tharmalingam et al., 2022, 2024; Yan & Brown, 2017), and undoubtedly, these resources are accessible while speakers produce their speeches.

Therefore, there is a lack of understanding of how students self-assess their learning through accessible feedback, precisely during an impromptu speech where assessment tools are limited or unavailable. Exploring this area of study, as suggested by prominent SA scholars (Bourke, 2014; Panadero et al., 2015), could yield valuable insights into individuals' critical thinking during SA from cognitive and metacognitive perspectives. Of the SA experts who recognise students' cognitive actions during SA is McMillan and Hearn (2008). They claimed that SA is iterative by nature, where students "monitor and evaluate the quality of their thinking and behaviour when learning and identify strategies that improve their understanding and skills" (p. 40). Here, students reflect on and judge their thought processes while producing them and plan actions to reach the desired learning product quality.

Understanding students' internal SA experiences has captured the interest of some researchers in EFL and ESL contexts. For example, Ryantika and Lilia (2020) explored the metacognitive markers EFL students use while self-evaluating their online speaking tasks. Although the metacognitive markers were explained in detail, these studies' data fall short due to students' self-reported questionnaires. Cohen et al. (2018) deemed such a data source not suitable for gathering an individual's in-depth life experiences, necessitating a study with a detailed data-gathering method to understand ESL students' internal SA experiences.

Moreover, Calderón and Nieto's (2017) investigation examined how SA enhanced EFL students' spoken fluency through audio-video recordings. Their findings indicated that EFL students' affective strategies influenced their spoken fluency improvements, and the insights into how metacognitive strategies facilitated the SA process are still lacking in spoken fluency. In addition, the studies mentioned above in EFL contexts engaged students in self-regulated learning by conducting retrospective reflections on their language learning products. These findings reveal a need for a more thorough understanding of ESL students' metacognitive strategies in SA through their introspective reflection, that is, understanding SA actions based on students' reflections while speeches were produced.

Based on the existing literature, Tharmalingam et al. (2022, 2024) are the two studies adopting McMillan and Hearn's (2008) SA definition to explore proficient and less proficient ESL students' SA metacognitive strategies during impromptu speech production. By using O'Malley and Chamot's (1990) metacognitive strategies, the studies identified that students at both proficiency levels used organisational planning, selective attention, and self-monitoring to self-assess and improve different speech aspects. Additionally, the study explicated how students' L2 proficiency influenced speech concerns during impromptu speech SA. Even so, the analysis was confined to one type of dysfluency marker (self-repetition) or proficiency level. It is unclear if ESL students would employ other SA metacognitive strategies while using other dysfluency markers. Exploring the afore-mentioned areas of study offer a deeper understanding of:

1. The cognitive efforts employed by ESL students while self-assessing and producing impromptu L2 speeches.
2. It is important to consider cognitive fluency in ongoing L2 speaking assessments and move beyond solely relying on external evaluations.
3. The ways in which ESL students, specifically the intermediate and low-proficient ones, utilise SA metacognitive strategies to assess their impromptu L2 speaking skills.
4. These findings hold significant implications for the ESL community, particularly educators, by informing the development of interventions and strategies to support intermediate and low-proficiency learners in enhancing their long-term communication skills.

THE PRESENT STUDY AND ITS CONCEPTUAL FRAMEWORK

Building on past studies, this case study explores Malaysian national secondary school ESL students' SA metacognitive strategies in an impromptu speech production context. Three students from intermediate and low proficiency levels participated in two 10-minute non-evaluative impromptu group discussions. The rationale for the number of participants and use of impromptu group discussions are detailed in the Method section, specifically within the Participants and Research Procedure subsections. The non-lexicalised pauses, listed by Dörnyei and Kormos (1998), as shown in Table 1, occurred in their impromptu speeches and were used as reference points to accomplish the study's purposes.

TABLE 1. Time-Pressure Processing Mechanism in Speech Production

Time-Pressure Processing Mechanism	Types	Descriptions
Non-lexicalised pauses	Unfilled pauses	Silence
	Umming and erring	er…, uh…, mhm...
	Drawl	Sound lengthening

The following research questions were addressed in this study:

1. What metacognitive strategies do intermediate proficiency ESL students use in their non-lexicalised pauses to self-assess impromptu speech production?
2. What metacognitive strategies do low-proficiency ESL students use in their non-lexicalised pauses to self-assess impromptu speech production?

This study extends the work of Tharmalingam et al. (2022, 2024), who investigated the SA metacognitive strategies of proficient and low-proficient ESL students through their use of lexicalised pauses, non-lexicalised pauses, and repetitions. Given that Kormos's speech production model and O'Malley and Chamot's list of metacognitive strategies were employed to analyse those findings, this conceptual framework (as illustrated in Figure 1) is well-suited for the present study, which shares similar objectives. Therefore, it was selected to investigate the SA metacognitive strategies of intermediate and low-proficiency ESL students, focusing specifically on their non-lexicalised pauses. The following discussion outlines reasons for selecting this framework and its role in guiding the data analysis.

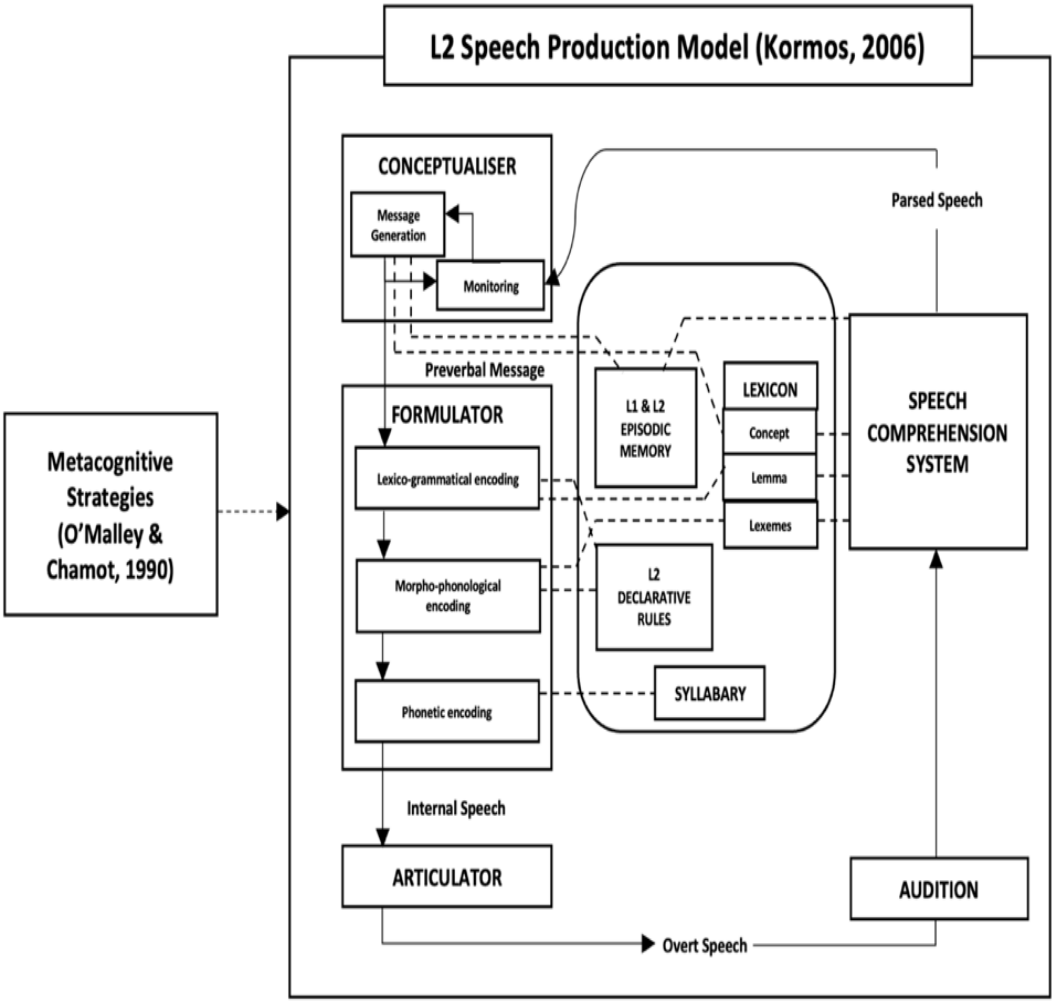

FIGURE 1. Conceptual Framework of Metacognitive Strategies of Self-Assessment in Speech Production (Tharmalingam et al., 2022, 2024)

First, this study aligns with Tharmalingam et al.'s (2022, 2024) choice of Kormos's (2006) model over Levelt's (1989) conceptual framework, aiming to enhance the analysis of L2 speech production. Unlike Levelt's model, which is primarily oriented toward L1 speakers, Kormos's model is tailored to address the unique cognitive challenges and processes encountered by L2 speakers, who often lack the automaticity inherent in L1 speech.

Second, Kormos (2006) revises Levelt's model by merging the World of Knowledge, syllabary, and lexicon into 'long-term memory,' which explains how L2 speakers of varying proficiency encode speech. Proficient speakers rely on procedural knowledge for encoding due to their automated L2 knowledge, while less proficient speakers rely on declarative knowledge, as their language abilities are not completely automated (Kormos, 2006). Given proficiency level impacts cognitive processing during speech production, researchers could recognise how and why the selected ESL students employ similar or varying SA metacognitive strategies during their dysfluencies.

Third, research on cognitive fluency has shown that speakers utilise dysfluency markers to monitor, plan, and revise speech (T. Kim, 2021; Mesch & Schönström, 2023; Tharmalingam et al., 2022, 2024). While these actions are distinct, they are closely linked to the metacognitive strategies proposed by O'Malley and Chamot (1990), which have been widely adopted in L2 research and have shown to be effective across age groups and language skills. This relationship is further validated by Tharmalingam et al. (2022, 2024), who examined ESL speakers' SA metacognitive strategies within the framework. Consequently, O'Malley and Chamot's strategies are linked to Kormos's model by a dotted arrow.

Building on the rationale for selecting Tharmalingam et al.'s (2022, 2024) conceptual framework, the discussion shifts to its role in guiding the data analysis. Kormos's model, comprising the conceptualiser, formulator, and articulator, facilitates identifying speech problems and problem-solving strategies. Notably, when speakers experience difficulties in speech content and linguistic planning, the conceptualiser and formulator are analysed to understand the strategies used to address the issues as they govern speech planning. Moreover, three monitoring loops are embedded at each level of speech production, enabling researchers to detect errors and assess how speakers utilise O'Malley and Chamot's *self-monitoring* strategies to enhance speech quality.

The rationale for using Kormos' model emphasises the varied functioning of long-term memory in L2 speakers based on their proficiency levels. This variation affects the strategies speakers adopt to tackle speech challenges during different stages of speech production. As such, Kormos's insights could clarify how L2 knowledge in long-term memory impacts the choice of speakers' SA strategies. Therefore, O'Malley and Chamot's metacognitive strategies are aptly linked to Kormos's model by a dotted arrow, enhancing the understanding of how SA metacognitive strategies are utilised by speakers at different proficiency levels.

METHOD

RESEARCH DESIGN

This study adopted an exploratory case study design to understand intermediate- and low-proficient ESL students' SA metacognitive strategies during their impromptu speech production. According to Yin (2014), a qualitative exploratory case study is suitable for exploring subjects with limited understanding. Likewise, this research design was considered suitable given the scarcity of research on how students perform SA internally, particularly from ESL settings. Additionally, Yin (2014) posited that research questions in exploratory case studies could comprehensively understand an individual's behaviour and processes. Similarly, the two research questions formulated in this study yielded profound insights into how and why ESL students of varied proficiency levels used the non-lexicalised pauses metacognitively to self-assess their impromptu speech production.

PARTICIPANTS

The participants in this study were carefully selected through purposive sampling, with an emphasis on a class of 16-year-old ESL students from a secondary school in Malaysia as the target group. The researchers are not instructors in the research setting and have no personal relationship with the participants. The selected class consisted of 31 students, with nine being proficient (Band C1/C2), twelve intermediate (Band B1/B2), and ten less proficient (Band A1/A2). Their

proficiency levels were determined by their Common European Framework Reference (CEFR) band on their 2021 Form Three Assessment (*Penilaian Tingkatan Tiga-PT3*) speaking test, a nationwide assessment for lower secondary students.

Following the briefing, only three low and four intermediate-proficiency-level students showed interest in participating in the study and received parental permission accordingly. However, one intermediate proficiency-level student was excluded from participating in the study due to a COVID-19 infection. Moreover, the proficient students were preoccupied with inter-school debate competitions, which rendered them unavailable for SRI sessions and ineligible for the study. Consequently, the remaining three students from the low and intermediate proficiency levels were selected as participants and grouped according to their proficiency level for impromptu discussions. The two groups of participants were used as the unit of analysis for the study, and a detailed breakdown of each Case can be found in Table 2.

TABLE 2. Participant Details

Case	Proficiency Level	Participant	2020 PT3 Speaking Test CEFR Band
I	Intermediate	Ivy	B2
		Iris	B2
		Ivana	B2
L	Low	Lira	A2
		Lia	A2
		Lana	A1

Those participants in Case I are students with CEFR bands B2. They have a good command of the language, allowing them to produce clear messages and explain viewpoints on a given topic with some grammar errors. At the same time, participants in Case L are participants with bands A2 and A1. They possess a rudimentary grasp of the language, only capable of communicating using simple language with basic expressions. Nevertheless, they can still perform basic routine tasks requiring simple information exchange. All participants share English as their L2, and they have been formally learning the language in school for ten years.

MATERIAL

Given that the impromptu discussions took place in the participants' classrooms during their English lessons, the language teacher's help was sought to prepare the discussion topics based on the Form 4 English syllabus. These topics, as shown in Table 3, were then sent to the school's English Language Panel Head for authentication.

TABLE 3. Discussion Topic

Context	Discussion Topic
1	The Best Technology-Based Teaching Aid for Learning
2	The Best Location for a Nature Club Trip

DATA COLLECTION PROCEDURE

Three participants, each from the same proficiency level, participated in two 10-minute impromptu group discussions during their English lessons. No pre-planning time was provided for the participants to prepare their speeches. Provided that the discussion was part of their English lesson, participants engaged in the task in the presence of their interlocutors and classmates. The language

teacher was only present in the setting to video-record the discussions, explaining that the discussions were carried out in a non-evaluative context. In so doing, the discussions were made to occur in a natural interaction and classroom environment without the researchers' physical presence disrupting the flow. Before the school session ended, the researchers diligently transcribed the video recordings using the digital software TurboScriber and recorded the duration and timing of non-lexicalised pauses in the participants' discussions with Audacity 3.7.0

Recent studies (Dörnyei & Kormos, 1998; Kahng, 2014; Simpson et al., 2013; Tharmalingam et al., 2022, 2024) used stimulated recall interview (SRI) technique to explore individuals' cognitive processes and metacognitive strategies through the dysfluency markers. Since the present study shared a similar purpose in understanding participants' SA metacognitive strategies through the non-lexicalised pauses, this interview technique was adopted to collect the study's data. In addition, the interview questions for the study were adapted from past investigations and were used after receiving two university lecturers, experts in the fields of assessment and speech fluency, opinions and having been piloted with other students. Those questions were:

1) At ____ mins, you said "____" and paused for ___ mins. What made you (pause)?
2) What were you thinking when you (paused)?
3) How did the (pause) help you to solve the speech problem you encountered?
4) What made you rethink the solutions you have developed to solve the issue?

The non-lexicalised pauses, such as filled pause, unfilled pause, and drawl, in the SRI questions were changed according to those that participants employed in their speech.

On the same day of the discussion, however, after the school session ended, the participants participated in individual SRI sessions in a distraction-free, empty classroom. Only snippets featuring participants' non-lexicalised pauses during the discussion were utilised to elicit interview responses. The SRI protocol developed by Gass and Mackey (2016) was utilised during the SRI session. While watching video clips played by the researchers on a laptop with a mouse, the participants would wear earphones to eliminate any external sounds that disrupt the interview session and allow them to concentrate on their non-lexicalised pauses. Additional probing questions were prepared in Case the participants' initial SRI response was vague.

Each SRI session lasted for an hour and was audio-recorded. Hence, other participants had to wait for the SRI until the previous interview session was completed. Following the interview, the researchers meticulously transcribed the audio recordings and sent them to the participants for member-checking. Upon obtaining confirmation from the participants regarding the credibility of the SRI responses, a thematic analysis was conducted.

DATA ANALYSIS

An analysis was conducted on SRI and video recordings to identify the SA metacognitive strategies employed by Cases I and L participants in their impromptu speech. The six-phase framework developed by Clarke and Braun (2017) served as the basis for a deductive thematic analysis of the SRI data. This analysis was done manually since running an analytic software was impractical. Prior to explaining the analysis procedure, the development of preliminary coding and themes for the study is elucidated.

Since the study aimed to uncover the SA metacognitive strategies employed by the two cases, pre-determined codes and themes were established (as shown in Table 4) based on past speech fluency research studies reported in the literature review, as well as the insights provided by O'Malley and Chamot (1990) regarding each metacognitive strategy. Only codes and themes from past studies that showed assessment processes, such as monitoring, evaluating, selecting, and comparing speech and linguistic aspects, were included.

Other codes that demonstrated language learning processes, such as searching for low-frequency words and planning for ideas and sentences, were excluded. These preliminary themes, however, were subject to further analysis and refinement as the data collected for the study was examined. The final coding and themes are presented in Table 5. The guidelines and implementation processes for conducting the thematic analysis are shown in Table 6.

TABLE 4. Initial Coding and Themes

O'Malley & Chamot's Metacognitive Strategies	**Initial Themes**	**Initial Codes**
Organisational Planning	Development of Communicative Intention (elaboration/clarification/ explanation)	Vague statement/utterance elaboration/clarification/ explanation
Selective Attention	Searching Lexical	Lexical retrieval issue: Selecting suitable lexical. Multiple lexical retrievals
Advance Preparation	Rehearsing Syntax	Rehearsing, Practising, Planned sentence, Intended idea
Self-monitoring	Ensuring Lexical Appropriacy	Faulty Word, Faulty Pronunciation, Uncertainty
	Ensuring Syntax Appropriacy	Faulty Syntax, Uncertainty
	Ensuring Idea Appropriacy	Uncertainty, Inappropriacy, Checking, Available Idea
	Revising Conceptualised Idea	Emerged Idea, Uncertainty, Inappropriacy, Checking, Reconceptualising
	Revising Syntax	Incorrect structure, the discrepancy between intended and uttered the idea

TABLE 5. Final Coding and Themes

O'Malley & Chamot's Metacognitive Strategies	**Final Themes**	**Final Codes**
Organisational Planning	Development of Communicative Intention (elaboration/clarification/ explanation)	Vague statement/utterance elaboration/clarification/ explanation
Selective Attention	Searching Appropriate Lexical Unit	Inappropriate Lexical Unit: Selecting a suitable lexical unit
Self-monitoring	Ensuring Lexical Appropriacy	Faulty Word, Uncertainty
	Ensuring Syntax Appropriacy	Faulty Syntax, Uncertainty
	Revising Lexical Unit/Syntax	Incorrect lexical unit/structure, the discrepancy between intended and uttered idea

TABLE 6. Deductive Thematic Analysis Processes (Clarke & Braun, 2017) & Implementation

Thematic Analysis Phase	Process Description	Implementation Process
Familiarising with data	Transcribing data, reading and rereading the data, and noting down initial ideas	• The researcher prepared the transcribed and member-checked SRI responses. • Thorough reading and rereading processes were conducted to become well-acquainted with the data. • Initial impressions and codes were noted based on the preliminary codes.
Generating Initial Codes	Coding significant data systematically across the data set, collating and categorising information relevant to each code	• The researcher assigned initial codes to each relevant information. • New codes that emerged during the analysis were updated and edited in the preliminary coding table. • Codes with the same category were colour-coded.
Searching for Themes	Collating the codes into potential themes, gathering all data relevant to each potential theme	• The researcher used the conceptual framework to collate the codes into possible themes.
Reviewing Themes	Checking if the themes work correspondingly to the code extracted in Step 1 and the data in Step 2	• A rechecking process was performed to ensure the themes accurately reflected the collected data.
Defining and Naming Themes	Ongoing analysis to refine the specifics of each theme, generating clear definitions and names for each theme	• Final checking of the themes • Two university lecturers' help was sought to review and validate that the analyses were consistent with the data gathered in the study. • The final themes and coding relevant to the study are presented in Table 5
Producing the Report	Final analysis, relating back analysis to research questions, producing a report	• Relevant excerpts from the interview transcript were extracted for reporting.

Following the SRI analysis, participants' video recordings were examined using Knoblauch et al.'s (2014) video analysis procedure. The process began by reviewing the relevant segments in the recording, specifically instances where participants used non-lexicalised in their discussion. Doing so enabled the researchers to supplement the SRI responses. Moreover, the snippet's timing, speeches before and after the pauses, and participants' non-verbal cues were noted and kept for future reference. After confirming that the video segments supported the research question and SRI analysis, the researchers reported the data alongside the SRI responses in the findings.

FINDINGS

This study explored the metacognitive strategies that Cases I and L participants apply to self-assess their impromptu speech. Thus, this section presents a thematic analysis of SRI and video-recorded data using the study's conceptual framework, an adaptation of Kormos's (2006) speech production model and O'Malley and Chamot's (1990) metacognitive strategies.

RESEARCH QUESTION 1 – SA METACOGNITIVE STRATEGIES BY CASE I PARTICIPANTS

The three Case I participants, namely Ivy, Iris, and Ivana, used two metacognitive strategies O'Malley and Chamot (1990) proposed, (i) organisational planning and (ii) self-monitoring, to self-assess their speech production. A detailed report on each strategy is provided below.

Organisational Planning is defined as a language learner's action in planning the language inputs required for language learning (O'Malley & Chamot, 1990). Ivy and Iva have applied this strategy in SA to plan their elaboration after identifying vagueness in their previous statements, as shown in Table 7.

TABLE 7. Organisational Planning – Elaborating Vague Statements

Participant	Discussion Context	SRI Excerpt	SRI Responses
Ivy	'…*Yes, but (clearing throat) in order to use (clearing throat) interactive whiteboard, we need someone,* ***uhh****… like teacher…* (VTE 1, Line 49)	1Q	*I thought that saying someone was not clear…so I thought of giving an example that can clearly explain my point.*
Iva	'…*You can send it in the form of a QR code to another device (looking at Ivy)* ***(pause)****, and they can, you know (hands in motion) scan it.'* (VTE 1, Line 35).	1G	"*Because I felt Ivy wouldn't understand, and she needed more explanation to understand what I was saying. …it wasn't clear in my previous sentence. I was thinking of more explanation*."

For example, Ivy planned her example when she noticed that saying '…someone…' was vague to convey her intended idea. She confirmed that her interlocutors' unfriendly cues made her notice the vagueness in her statement when cross-checking her SRI responses. Authenticating her verification, her realisation of the vague statement was apparent when she observed Iris and Iva frowning their eyebrows at minute 3.44 after saying '…*someone*…'. Thus, this analysis demonstrates that Ivy's concern about conveying her intended idea lucidly to her interlocutors directed her to monitor her vague statement and apply the organisational planning strategy to plan her explanation.

A comparable concern also led Iva to self-assess and plan her elaboration during impromptu speech production. In the same conversation context as Ivy, upon noticing that her previous statement was vague, Iva planned her explanation to facilitate her interlocutor's comprehension. This analysis is confirmed as Iva observed Ivy's confused facial expression after Iva completed her sentence '…*You can send it in the form of a QR code to another device*…' at minute 2.49. This unfriendly cue enabled Ivy to identify the vagueness in her statement and, subsequently, apply the organisational planning strategy to plan her explanation.

While similar actions are evident in other conversation contexts, Ivy and Iva's analysis explains their concern about producing lucid speech for interlocutors' comprehension, which led to their organisational planning strategy during impromptu speech SA. They constantly observed their interlocutors' non-verbal cues to evaluate the effectiveness of their speech quality and subsequently plan elaborations to achieve their communicative goal. Nevertheless, this conclusion is unfit for Iris since she did not mention noticing vague statements during her impromptu speech production. Having discussed Case I participants' organisational planning strategy, the following paragraph reports on their self-monitoring strategy.

Self-monitoring denotes a learner's review of the appropriateness and precision of language input for language learning (O'Malley & Chamot, 1990), which two Case I participants (Ivy and Iris) applied this strategy during SA to revise their inappropriate word choices before articulation, as shown in Table 8.

TABLE 8. Self-monitoring – Revising Inappropriate Word Choices

Participant	Discussion Context	SRI Excerpt	SRI Responses
Ivy	'*…So, in my opinion, I feel the city would be **the best** choice for Nature, it's because…*' (VTE 2, Line 3).	2D	"*Because in my head, I wanted to say place, but I felt the place was uhh… not like uhh…suitable…then I changed to choice. …like the choice sounded good…like we are making choice…place is like not suitable"*
Iris	'*…most of the things are altered, and the plants **are** modified in a certain way…'* (VTE 2, Line 45).	2H	"*I was thinking of genetically modified, but then I just went with modified. Because that term is too scientific."*

For example, Ivy monitored that the retrieved word '*…place…*' was inappropriate for the context of her sentence, making her revise it with a more appropriate expression '*…choice…*'. Ivy verified the availability of her initial word '*place'* when cross-checking her SRI responses. Moreover, her contemplation of the word appropriateness could be why she gazed at the topic paper while drawing at minute 0.14. Hence, this analysis indicates that Ivy's L2 semantic knowledge enabled her to identify and select appropriate word choices for her sentence context.

Likewise, in the same conversation context as Ivy, Iris revised her initial word choice from '*genetically modified'* to '*modified*' as she deemed it inappropriate for her sentence context. Her realisation of the inappropriate word retrieved in her mind could be why she shook her head while drawling '*…are…*' at minute 3.31 and immediately said '*modified'* to continue her speech. In sum, Ivy and Iris's speech instances indicated that their concern with producing speech relevant to the discussion led them to be conscientious with appropriate word choices. One factor that drives this concern is their knowledge of L2 semantics, enabling them to differentiate word choices that are appropriate and inappropriate to their sentence contexts.

RESEARCH QUESTION 2 – METACOGNITIVE STRATEGIES BY CASE L PARTICIPANTS

In applying O'Malley and Chamot's (1990) metacognitive strategies, the three Case L participants, namely Lira, Lia, and Lana, applied only one strategy, *self-monitoring*, to self-assess their impromptu speech.

Self-monitoring is a strategy used by language learners to check the accuracy and appropriacy of spoken or written production while it is being produced (O'Malley & Chamot, 1990). Likewise, two Case L participants (Lira and Lia) used this strategy to ensure the accuracy of their words and sentences before and after articulations, as shown in Table 9.

TABLE 9. Self-monitoring – Reviewing the Accuracy of Words and Sentences

Participant	Discussion Context	SRI Excerpt	SRI Responses
Lira	'*…the textbook to school **while** learning so that we can get more information…'* (VTE 1, Line 34).	1S	"*I was wondering if it was correct to say learning after saying while. I was scared if I wrongly said it. That anxious feeling made me wonder if it was learning or learn*ing."

Lia	'*…or laptops and stach…stationary and **uhh** no need…*' (VTE 1, Line 17).	1F	"*that time, I didn't want to say stationary but wanted to say mouse…but couldn't remember it, so I said stationary. After that, I think back to whether it was the same as what I thought*."

For example, Lira's concern about conveying her idea accurately made her recheck the accuracy of her two-word choices. She confirmed her confusion between '*learning'* and '*learning'* while verifying her SRI responses. Lira's uncertainty could led her to avoid eye contact with her interlocutors and look at the topic paper as she drawled at minute 4.58. Although her SRI response demonstrates Lira's concern to convey ideas accurately in L2, her SRI verification indicated that her lack of knowledge on correct verb tense induced her concern to self-assess.

While Lira's strategy was during pre-production, Lia applied the same strategy in post-production. For instance, Lia monitored her speech against her intended idea as she had used an unanticipated word to convey her idea. The video analysis confirmed the unanticipated word when Lia repeated the specific word at minute 2.00 and gazed at her classroom ceiling at minute 2.02 after saying the word. Similar to Lira, Lia's concern to convey her idea accurately in L2 made her recheck her utterance's accuracy. However, her SRI responses indicated her lack of L2 knowledge, which made her retrieve an unanticipated and faulty word to complete her sentence, prompting concern about speech accuracy.

Their consistent pattern in the context of other conversations suggests that the concern to convey ideas accurately in L2 directs their self-monitoring strategy. However, the analysis indicated that Lira and Lia's lack of L2 knowledge induced their concern to self-assess their impromptu speech production. This conclusion does not apply to Lana, as her speech instances and SRI responses did not indicate the use of non-lexicalised pauses for SA. This factor could be due to her low proficiency level compared to Lira and Lia, evidenced by her non-lexicalised pauses, which were used mostly for encoding her thoughts in L2.

DISCUSSION

This section discusses the metacognitive strategies that Cases I and L participants apply to self-assess their impromptu speech production. Analysis indicated that Case I participants used two strategies, namely organisational planning and self-monitoring, to monitor, reflect and enhance their impromptu speech production, whereas Case L participants only employed one strategy, self-monitoring, in their SA. Detailed interpretation of the analysis is discussed below.

CASE I'S SA METACOGNITIVE STRATEGIES

Expanding on Simpson et al. (2013) and Manzano (2018), who found improvements in speech clarity among intermediate speakers, this study demonstrates how two Case I participants, Ivy and Iva, used interlocutors' non-verbal signals to apply organisational planning during impromptu speech SA and clarify vague statements. Thus, while SA rubrics and checklists are useful assessment tools, contextual cues can also serve as significant resources for intermediate speakers to assess and refine their speech. Unlike participants in T. Kim (2021), who reformulated utterances for grammatical accuracy in an evaluative context, Case I participants prioritised interlocutors' comprehension in a non-evaluative speech context. This distinction underscores the impact of task demands on intermediate speakers' focus in speech production. Overall, the study emphasises the role of contextual cues and task demands in shaping organisational planning strategies during

impromptu speech SA. As this finding supports and challenges prior research, further investigation is needed to understand how contextual cues and task demands impact intermediate speakers' planning strategies during impromptu speech SA.

Moreover, this study aligns with previous research by De Jong (2018) and Kormos (2006) on speech monitoring, which describes how speakers adjust their utterances to align with intended meanings. The two Case I participants, Ivy and Iris, used self-monitoring during impromptu speech SA to refine word choices before articulation. Similar to Simpson et al. (2013), who observed intermediate L2 Chinese speakers replacing words, this study extends understanding by illustrating the role of L2 semantic knowledge in speech monitoring within an L2 English SA context. Although Ivy and Iris activated synonyms, their deeper L2 semantic awareness discerned subtle nuances and selected words that conveyed intended meanings accurately. Consequently, the pre-articulatory monitoring loop triggered by their L2 semantic knowledge prompted them to refine their word choices, highlighting its importance in crafting accurate communication. While shedding light on the potential role of L2 semantics in SA, this finding is limited by two participants. Future studies with a larger group of intermediate speakers are needed to confirm and expand this intriguing finding.

CASE L'S SA METACOGNITIVE STRATEGY

Studies have shown that low-proficiency L2 speakers are motivated to monitor and reformulate their speech to improve grammatical and structural accuracy (D. R. Kim, 2019; Kormos, 2014; Sadeghi & Pourhaji, 2021). A similar concern led to two Case L participants' (Lira and Lia) self-monitoring strategies during the impromptu speech SA. However, unlike previous findings where reformulation was central, Lira and Lia used self-monitoring primarily to reconfirm the accuracy of their internal and overt speech. Their SRI data revealed difficulties in distinguishing subtle grammatical nuances and encoding intended L2 words, leading to self-doubt about their speech's accuracy. This analysis aligns with Kormos's (2006, 2014) suggestion that unautomated L2 knowledge shapes self-monitoring behaviour in impromptu contexts. Lira and Lia's limited grammatical and vocabulary proficiency likely influenced their self-doubt, underscoring the importance of L2 proficiency in self-monitoring during SA. Notably, the discussion took place within a classroom setting, raising the possibility that Lira and Lia's speech difficulties might have been intensified by the presence of more advanced classmates. This potential influence of the contextual factor warrants further investigation. Future research can explore the interaction between proficiency, self-monitoring behaviour in impromptu speech SA, and the availability of more proficient interlocutors or audiences. Such exploration could yield deeper insights into the complex dynamics among these factors.

CONCLUSION / FUTURE RECOMMENDATION

This qualitative exploratory case study investigated the metacognitive strategies employed by intermediate (Case I) and low-proficiency (Case L) ESL students during SA of impromptu speech production. The analysis of Case I participants revealed the use of organisational planning and self-monitoring, influenced by contextual cues, task demands, and L2 semantic knowledge. In contrast, the analysis of Case L participants offered insights into the link between proficiency and

self-monitoring during impromptu speech SA. While offering valuable insights into how Cases I and L participants performed SA, the study has limitations.

First, despite the case study design, the findings are based on limited sample size and timeframe, necessitating further research with larger and diverse groups in different speaking contexts. Second, focusing solely on non-lexicalised pauses requires further investigation into SA strategies associated with other dysfluency markers. Third, discussion tasks in the classroom setting and the presence of advanced classmates call for further investigation into the complex interplay between SA metacognitive strategy and diverse speaking contexts.

Despite these limitations, the study demonstrates that ESL students, regardless of proficiency, can self-assess their impromptu speech using accessible resources within their speech context. Recognising and nurturing these SA strategies, rather than solely focusing on dysfluencies, inform the development of effective L2 interventions tailored to individual needs. For instance, incorporating SA into the curriculum can encourage ESL students to utilise their accessible feedback within speech context to self-assess and improve speech qualities, fostering self-reliant learners and building their long-term communicative skills.

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