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Efficacy of teaching practices in online English comprehension lessons for learners with Specific Learning Differences (SpLD): A qualitative analysis

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Abstract

The Prep 2 PSLE (Preparation for English Paper 2 PSLE) Programme was designed and implemented in 2013 with the primary goal of supporting primary school students with dyslexia and other specific learning differences (SpLDs) in their school and national examinations. With the introduction of online teaching and virtual lessons in 2020, the programme has integrated the use of video lessons and online educational applications to deliver the same curriculum. This qualitative study aims to assess the efficacy of teaching practices through the use of online teaching tools and teachers' questioning techniques, and how they promote students' learning by observing their engagement and application of learnt skills in online classrooms. The findings of this research have implications for educational therapists by offering valuable insights into enhancing teaching methods through a strategic fusion of teaching tools and questioning techniques

Keywords: PSLE English Paper 2, dyslexia, specific learning differences, English, exam preparation,

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INTRODUCTION

The emergence of new inquiries into the subject of online learning has since gained prominence in response to the impact of the COVID- 19 pandemic around the world (Gustiani, 2020; Knopf, Stumpp & Michelis, 2021). The sudden shift from traditional classrooms to virtual ones compelled educators to deliver lessons remotely through various applications on virtual platforms, often without any prior experience or training (Lennox et al., 2021). As the global landscape returns to the normalcy of conventional classrooms, educators and school leaders deliberate on the possibility of continued learning through the virtual platforms. Undoubtedly, online learning offers numerous advantages. It provides accessibility to tune in to lessons at any location which minimises travel time and financial expenditures. However, deliberation is done cautiously knowing that there is limited discourse on students' engagement in online learning (Lazareva, 2018). This is evident especially in the field of Specific Learning Differences (SpLD), where students face differences or difficulties with particular aspects of learning, resulting from neurodevelopmental disorders that often affect one's ability to receive, process, and recall information (Dyslexia Association of Singapore, 2023).

Learners with SpLD, including those with Dyslexia and Specific Language Impairment (SLI), face challenges in acquiring and understanding language and literacy, due to difficulties with phonological processing, working memory, attention, organisation, sequencing, and executive functioning. Understanding these differences is crucial for educators and support professionals, as it helps them tailor instructional strategies and interventions to meet the specific needs of students with SpLD (British Dyslexia Association, 2017).

Prep 2 PSLE Programme

The Prep 2 PSLE programme was developed in 2013 to support students beyond literacy intervention at the Dyslexia Association of Singapore (DAS). It aims to help learners prepare for the English language paper of the Primary School Leaving Examination (PSLE), taken at the end of the final year of Primary school education. Previous studies (Leong, 2015; Leong, Asjamiah & Wang, 2017; Razak, See, Tan & Leong, 2018; Razak, Asjamiah, Wang & Leong, 2021) have demonstrated that the Prep 2 PSLE programme is effective in addressing the examination needs of this group of learners through an explicit and systematic teaching methodology.

All programmes at DAS, including Prep 2 PSLE, subscribe to the Orton-Gillingham (OG) approach for its dyslexia remediation and intervention (Leong, Asjamiah & Wang, 2017). A key feature of the OG approach is its simultaneously multisensory instruction which engages students through visual, auditory, kinesthetic and tactile (VAKT) sensory activities to help them learn and remember information more effectively. Each lesson in the Prep 2 PSLE programme is guided by the R-I-M-A-I-R structure in Table 1 which emphasises a

review of concepts and skills taught previously and during the lesson and gives opportunities for teachers to teach new concepts or skills by modelling them explicitly and enable them to monitor students' understanding through semi-independent and independent application.

Table 1: R-I-M-A-I-R Approach

R	Review of previously taught concepts
I	Introduction of new topic/ concept / skill / strategy
M	Modelling of how concept / strategy is applied in questions
A	Application of concept / strategy by students with teachers' guidance
I	Independent application of concept / strategy by students
R	Recap of the topic / concept / skill / strategy taught

The study by Leong et al. (2017) on effective classroom practices in the Prep 2 PSLE programme (formerly known as English Exam Skills Programme) also illustrated that the consistent use of the RIMAIR lesson structure and VAKT (Visual; Auditory; Tactile; Kinesthetic) elements by the teacher supports student engagement and promotes better retention, thereby enhancing students' learning processes. The Prep 2 PSLE programme is postulated to benefit all learners, encompassing those facing challenges in their learning, regardless of whether they are diagnosed with SpLD or experiencing other learning difficulties (Razak et al, 2018).

LITERATURE REVIEW

Traditional and online learning

Traditional in-person teaching in a physical classroom setting allows teachers to assess students' understanding of concepts through non-verbal cues and make adjustments to their instruction accordingly. According to a Harvard study (Wasserman, 2019), students expressed that they learned more through in-person lectures that employed active learning strategies. These include classroom techniques such as getting students to answer questions and assigning the class to work in groups, and they were found to produce better educational outcomes. Additionally, the social environment of traditional classrooms engages students to use their physical senses to learn, enhance their soft skills and increase student interaction.

Daloiso (2017) suggested that traditional and one-size-fits-all approaches to language teaching are usually ineffective for learners with dyslexia. Teachers should instead have a range of strategies to respond to individual learners' needs by integrating technology and subscribing to more structured, gradual and explicit teaching methods. Hence, classroom accommodations, through the use of different learning tools and multisensory approaches, are beneficial in the learning process (Cimermanova, 2015).

Nijakovska et al. (2013) recommended seven ways in which SpLD learners can be accommodated in the classroom for language learning:

1. Using explicit instructions and teaching procedures
2. Simplify lesson materials
3. Organise information and lesson content
4. Provide additional support and practice
5. Encourage peer mediated interaction and learning
6. Using multisensory approach
7. Giving individualised approach

Through consistent implementation of these techniques, struggling learners or those with SpLDs can significantly improve their English comprehension and become more successful learners. Lama (2019) recommends that teachers must also undergo consistent training and embrace innovative approaches to shift from traditional teaching methods to a contemporary style where students take an active role in their learning. They should encourage students to explore the lesson's content, take an active role in meaning-making by integrating technology, so that they will see learning as something that motivates them.

Literature has shown that when equipped with certain characteristics and skills, learners can also be successful and satisfied with online learning. In online environments, the importance of students' self-regulation, motivation, and favourable learning attitudes become more pronounced and significant (Chiu, 2021). These favourable learning attitudes encompass self-regulation skills, self-discipline, adept time management, organisational abilities, planning capabilities, and the capacity for self-evaluation (Eom, Wen & Ashill 2006; Kerr, Rynearson & Kerr 2006; Muilenburg & Berge 2005; Ruey 2010).

Successful online students often exhibit reflective or visual learning styles (Eom, Wen, & Ashill 2006; Means et al. 2010) and an internal locus of control (Berenson, Boyles, & Weaver 2008). Additionally, Emotional Intelligence (EI) plays a crucial role in the realm of online learning as it is common for students to experience frustration due to technological challenges or difficulties in grasping information when immediate feedback or assistance is not available. Students who can manage their emotions and seek appropriate help before reaching a state of frustration are more likely to maintain control over their learning (Berenson, Boyles, & Weaver 2008).

Student Engagement

Student engagement is defined by the amount of time and effort that learners dedicate and invest in the processes of learning, with extensive inquiry into this field spanning from quantitative to qualitative studies (Kuh, 2003). The great interest in this domain of student engagement stems from its perceived positive correlation to academic grades (Tross, Harper, Osher & Kneidinger, 2000; Reyes, Brackett, Rivers, White & Salovey, 2012). These studies show that the more engaged learners are, the better they perform in classrooms and assessments (Lei et al., 2018). Being more engaged also resulted in lower drop-out rates in schools (Archambault et al., 2009, Szabó, Zsolnai & Fehérvári, 2024). While student engagement largely stems from the effort that students invest in their own learning, it is also influenced by various external factors, making it a malleable aspect of education (Fredricks et al., 2004; Lawson & Lawson, 2013). Positive changes in factors such as teaching practices and environment can significantly enhance student engagement. The findings of these studies have great relevance to educators and their teaching practices in classrooms. Besides its impact on academic grades, learners who were engaged in learning were also found to be more motivated to invest their time in learning and became more persistent (Gettlinger & Walter, 2012).

Given its positive impact on learning, researchers have investigated the multifaceted nature of student engagement. While there is no common consensus to the number of definitive sets to student engagement, there are three widely accepted and distinct domains- behaviour, cognitive and affective engagement, with extensive inquiries done on each domain (Fredricks et. al., 2004)

Researchers have defined and characterised each domain in the following ways:

- ♦ **Behavioural Engagement** refers to learners' explicit behaviours that can be observed through their participation, performance and completion of tasks.
- ♦ **Cognitive engagement** explores learners' purpose and motivation to learn, critical thinking and their ability to comprehend complex ideas.
- ♦ **Emotional engagement** looks into learners' attitudes and the way they interact with their teachers and peers.

However, Fredricks et. al (2004) brought forth the notion that these domains should not be viewed as individual domains. Viewing them as separate entities would not provide a holistic understanding of learners' characterization. Instead, in the real-life context of classrooms and learning, student engagement is an interlinked web of a student's behaviour, cognition and emotion. Understanding the interplay of these domains and moulding lessons to increase engagements would optimise learners' performance.

However, this could be a challenge for learners with SpLD as they present a distinct set of challenges. These learners commonly face academic hurdles which could significantly impact engagement. It is imperative to recognize that the conditions and domains that work for typical learners may not necessarily work the same for learners with SpLD. As such, it warrants researchers' attention to further delve into the distinct set of needs of these learners.

There have been numerous studies exploring the relationship between the impact of SpLD on learners' engagement. While some have shown a negative correlation, other studies have found no significant impact. Moreira et al. (2018) argues that the reason for the inconclusive outcome of these studies is due to the differences in the way that engagement is being conceptualized. Perez-Salas' et al. (2021) study revealed that learners with Specific Educational Needs (SEN) were found to have higher disengagement in the behavioural and cognitive dimensions. However, learners with SEN presented higher engagement in the affective dimension as they rated themselves comparatively high in their relationship with their teachers. These studies provide a critical lens into the varying domains of student engagement among learners with SpLD.

Questioning Techniques

Questioning refers to the act of teachers asking questions in a classroom setting in order to promote student thinking, interaction, and participation in processing knowledge (Phan & Nguyen, 2021). Questioning techniques play a crucial role in the classroom, significantly influencing students' understanding and knowledge acquisition (Matra, 2014; Davoudi & Sadeghi, 2015).

Instead of only answering questions, students' learning experience can also be enhanced during comprehension lessons by generating questions. Research by Wibobo et. al. (2020) on strategies in teaching reading comprehension found that the majority of strategies employed by the English teachers were Question Generating and Question Answering- the former requires students to ask questions while reading the text whereas the latter requires students to respond to their teachers' questions. In the process, students are prompted to think critically as they are guided on how to locate information, analyse text structures and apply inference skills where appropriate.

Effective questioning stimulates student interest and curiosity, actively engaging them in the learning process and positively influences student learning, interaction, and communicative competence (Matra, 2014, Davoudi & Sadeghi, 2015; Wangru, 2016; Cárdenas, 2021). Particularly in the aspect of reading comprehension, teachers' questions were found to improve readers' comprehension level of passages (Davoudi & Sadeghi, 2015). Interviews with students revealed positive feedback, highlighting the efficacy of questioning techniques employed by teachers in enhancing their reading comprehension skills (Phan & Nguyen, 2021).

The types of questions used by teachers are paramount as they can elevate students' comprehension levels and contribute to the construction of new knowledge (Matra, 2014). Cárdenas (2021) distinguishes between two groups of questions: low-level questions assess understanding from given information and high-level questions that promote interaction and critical thinking. While both are deemed necessary, the latter encourages the co-construction of knowledge from the content of the passages as well as the comprehension skills (Cárdenas, 2021). In line with this, Nguyen and Nguyen (2023) provided further details on these groups- low-level questions consist of recall questions, display questions and classroom management questions whereas high-level questions hold the objective of encouraging conversations and improving students' critical thinking skills. High-level questions, also termed as referential or creative questions, may not have a standardised answer (Nguyen & Nguyen, 2023; Al-Zahrani & Al-Bargi, 2017; Wangru, 2016). These questions also require students to engage in higher order cognitive processes and promote reflection and metacognition (Raslie, Mikeng & Ting, 2015).

High-level questions, such as those with 'how' and 'why', stretch students beyond the explicit meaning of the text (Blything, Hardie, & Cain, 2020). These questions may also prompt students to incorporate their background knowledge or schema to engage in deeper levels of thinking and understanding. Anderson (1977) likens schema to a form of abstract representation, where readers can activate background knowledge to comprehend a text. In describing how to apply schema theory in teaching reading comprehension, Ren (2023) argued that reading involves constant interaction between one's schema and the texts. Teachers can guide readers to process and interpret new information better by linking the information to the readers' prior knowledge and cultural background, reflecting on past experiences and organising these experiences to bridge the gap between existing knowledge and the unknown details of the comprehension passage. By doing so, learners are trained to corroborate and predict textual content, and to gain a deeper appreciation and understanding of the text beyond surface level reading.

Despite these, most teachers tend to ask lower-level questions in class (Tofade, Elsner & Haines, 2013). This is consistent with Davoudi & Sadeghi's (2015) finding that the most dominant type of questions was display questions, which were used for the purpose of eliciting information or checking learners' understanding. Nonetheless, both types of questions play important roles in the learning process, and a balanced approach that incorporates both high-level and low-level questioning can provide a comprehensive and effective learning experience for students (Raslie, Mikeng & Ting, 2015).

Harvey (2008) emphasized that teachers need to be intentional in planning and executing questioning strategies such that the intended learning outcomes for the questions posed must be clear and beneficial to the learners. Applying questioning techniques effectively also enables readers to be fully immersed in the reading process. Sujariati, Rahman and Mahmud (2016) summed up the benefits of asking effective

questions- learners are able to apply critical thinking skills, construct new meanings and make new connections with the text, gain a deeper level of comprehension and appreciation of what they are reading, and be motivated to be involved in the learning process. As such, it is vital that teachers plan and apply questioning strategies in the most effective way so that it achieves its maximum outcomes.

For students with SpLDs such as dyslexia or ADHD, questioning techniques have been suggested to be effective in enhancing their English comprehension by providing necessary scaffolding and support to overcome their unique challenges (Rupley, Blair, & Nichols, 2009; Raslie, Mikeng & Ting, 2015). The use of strategic and targeted questions encourages student engagement, making their learning experience a more active and meaningful learning process. These techniques help to foster critical thinking skills, encourage deeper understanding, and promote effective communication. By asking open-ended questions, teachers create opportunities for students to express their thoughts and interpretations, facilitating the development of their language skills.

RESEARCH AIM

While there is existing research that primarily focused on intrinsic learner characteristics that contributed to successful online learning for neurotypical learners (Eom, Wen & Ashill 2006; Kerr, Ryneearson & Kerr 2006; Muilenburg & Berge 2005; Ruey 2010), there has yet to be sufficient research done on the external factors that could have an impact on students' engagement specifically on primary school learners with SpLD. Hence, the current research aims to explore the efficacy of teaching practices on students' learning and engagement, in the context of online learning for students with SpLD in the Prep 2 PSLE programme. The focus on teaching practices includes questioning strategies, gestures and nonverbal cues.

This study was guided by the following research questions:

- ◆ How do students exhibit engagement across the three domains (behavioural, cognitive and emotions) during online Prep 2 PSLE lessons?
- ◆ What are the teaching practices adapted by the teachers to meet the needs of SpLD learners during online Prep 2 PSLE lessons?
- ◆ How do teaching practices influence the engagement and comprehension outcomes of learners with SpLD in Prep 2 PSLE online lessons?

The findings of this research will offer a unique perspective for educators and school leaders, helping them in making informed decisions to engage teachers in continued professional development.

METHODOLOGY

Participants

This qualitative study was conducted by observing two recorded online classroom lessons taught by two different Prep 2 PSLE educational therapists. These classes are conducted on a weekly one-hour lesson via a synchronous online learning mode through Zoom. Both therapists are trained to deliver lessons in accordance with the RIMAIR teaching approach developed by the programme (Leong, Asjamiah & Wang, 2017). A total of 2 educational therapists and 5 students, aged between 11 and 12 participated in this study. Of the 5 students, one of them has a diagnosis of Speech and Language Impairment (SLI) while the other 4 students are diagnosed with Dyslexia. Both recorded lessons centre on enhancing comprehension skills, with both teachers employing identical materials and worksheets.

Data Collection

a. Classroom observations

Two online lessons were recorded to analyse the lesson delivery, teaching practices and students' engagement. Each lesson was 1 hour long, covering the same content on comprehension.

b. Student worksheets

During the lesson, students were given a link to their individual online worksheets. They typed their responses on these worksheets, which were analysed to assess their application of learnt concepts.

c. Online learning tools

Both teachers employed the use of similar online teaching tools. All students logged into the lesson Zoom, facilitating the learning through live video conferencing. As the teachers delivered the lesson, the screen continued to display videos of students, enabling real-time monitoring of their engagement. The comprehension worksheets with embedded links and quizzes were used by both teachers on Classkick. The use of Classkick enabled interactive learning and real-time supervision. Teachers were able to assess whether students were on-task by viewing their individual worksheets while they were typing in their responses. At the same time, teachers can also provide timely feedback and target specific areas for improvement. Additionally, the collaborative functions allowed teachers and students to work together on the same worksheet at the same time, and teachers can assist students with classkick functions when needed. Teaching online also

allows teachers to seamlessly integrate videos and search engines during the lesson to reinforce the content of the lesson. In particular, to prepare the students for the content of the comprehension passage, a video was shown on youtube which highlighted a hiker's experience. This provided students with some real-life scenarios that further aided their overall understanding of the passage and formed connections with the text presented.

Data Analysis

Engagement for Learning (EFL) framework

A framework is required to assess and code observations of student engagement. Recognizing the research gap where no existing framework holistically captures the various domains of student engagement—behavioural, cognitive, and emotional—along with their interplay with factors such as teaching practices and student application, the researchers designed the Engagement for Learning (EFL) framework (Annex A). The EFL was adapted from the Interactive Factors Framework (IFF) (Frith, 1999) which is a tool to analyse learner and teacher interactions as it helps to identify recurring patterns in classroom discourse and how teacher-dominated or student-centric interactions can influence learning outcomes. The EFL framework, on the other hand, not only measures students' application in written tasks but also provides insights into how teaching practices impact student engagement and how this engagement translates to practical application of acquired knowledge. As discussed earlier in the literature, this paper seeks to analyse three domains of engagement that have been widely accepted by researchers (Fredricks et al, 2004). Firstly, behavioural engagement which encompasses learners' visible actions and involvement in learning activities, such as staying focused, actively participating in discussions, and consistently completing assignments. Secondly, cognitive engagement delves deeper into the mental aspects of learning, addressing students' intrinsic motivations, critical thinking skills, and their ability to process and apply complex concepts. Emotional engagement refers to the learners' feelings, attitudes, and interpersonal connections within the online class, examining how positive relationships with the teachers and their peers, along with a sense of belonging and confidence, impact their enthusiasm and commitment to learning. Collectively, these domains would provide a comprehensive view of a student's engagement, reflecting an interplay of observable behaviours, mental involvement, and emotional well-being.

Structure of analysis

The researchers were divided into two teams. Researcher 1 (R1) and Researcher 2 (R2) observed the video recording of Teacher X's lesson, noting their individual observations based on the domains in the EFL. They then shared and consolidated their observations into a single EFL for Teacher X's class. Similarly, Researcher 3 (R3) and Researcher 4 (R4) watched the recording of Teacher Y's lesson, documented their observations using the

EFL domains, and merged their insights into one EFL for Teacher Y's class. Each pair of researchers also examined the links between the factors within the framework and discussed their interactions. This process resulted in one consolidated EFL for each teacher. The researchers then compared the two EFL frameworks to identify similarities and differences, as illustrated in Figure 1 below.



Figure 1: Process of Analysis

Besides documenting the observations in the EFL, the researchers also analysed the transcripts of both lessons and identified various questions posed during the lesson. These questions were then categorised as high level questions that promote critical thinking and low level questions which assess the understanding of information provided in the passage (Cárdenas, 2021 & Nguyen and Nguyen, 2023).

FINDINGS AND DISCUSSION

The current study sought to explore the efficacy of teaching practices on students' learning and engagement. In order to achieve this, the researchers observed the recorded video lessons and took note of the observations by indicating on the EFL framework. Interactions were drawn during analysis and explained in detail.

The data that was collected from the EFL of both Teachers X and Y clearly indicated interactions across various domains of student engagement. This is in line with the conceptual framework discussed in the literature review section of this paper. As highlighted by Fredricks et al. (2004), the behavioural, cognitive and emotional domains of student engagement are not isolated. Rather, they are interconnected through a web of links across the various domains. This suggests that in order to understand student engagement, it is necessary to view the three domains as part of an extensive network system. Teachers can create a more holistic and meaningful learning experience for their students if they do not view student engagement as separate entities. This interlinked

web of connections are evident in Teacher X and Y's classrooms where the domains interact fluidly which enhances students' engagement and their learning outcomes.

This interplay across domains extends beyond student engagement to teaching practices and students' application. For example, lessons that activates students' active participation showcases behavioural engagement. Active participation requires students' cognitive and emotional engagement as well. Understanding this would aid teachers in fostering a more engaging learning environment for their students. Teacher X and Y's classroom practices illustrate the intertwined relationship across the various domains.

The figures presented in this study further demonstrate the web of connections between these engagement domains and teaching practices, visually capturing the complexity of these interactions. These diagrams reveal that engagement is not a linear process but rather an intricate network of influences that shape student outcomes. However, this paper focuses on several key connections that are particularly significant, as they demonstrate deeper and more extensive interactions across all domains. By exploring these critical connections, this study aims to provide a more comprehensive understanding of how engagement in the classroom is shaped by the dynamic relationships between behaviour, cognition, and emotion, and how these relationships extend to teaching practices and students' ability to apply what they learn. Through this discussion, the findings will offer insights into how teachers can leverage these connections to improve student engagement and overall learning outcomes. The discussion below also highlights how Teacher X and Teacher Y's teaching practices are uniquely tailored to their respective classes, particularly in how they elicit student responses and guide them toward comprehension and meaning-making. Despite these differences, what is most notable is the diverse methods they employ to engage students, effectively addressing all domains of learning.

As seen in Table 2, the chain represented by Lines 1 illustrates the interconnectedness of the domains within the EFL which is facilitated by the teacher's instructional practices during the lesson. In particular, Teacher X's use of active questioning strategies in guiding students through the annotation process supported their understanding of keywords in the questions and unfamiliar words and new vocabulary in the comprehension passage. Prior to guiding the students through the annotation of the passage, Teacher X reviewed the questions with the class. By deconstructing the questions and clarifying the task requirements, Teacher X emphasised the distinction between extracting a "word" and a "phrase" from the passage, using targeted questions to assess students' understanding of both terms. This step was crucial, as a clear comprehension of the difference between a word and a phrase enhanced the students' ability and confidence to answer the questions accurately and independently after reading the entire passage.

Findings from EFL 1 (Teacher X's lesson)

Table 2: EFL of Teacher X

Teaching Practices	Behavioural	Application
Online tools	(+) Responsiveness (-) Responsiveness	Independent
Annotation	(+) Compliance (-) Compliance (+) Attention (-) Attention	
Emotionally sound	Cognitive (+) Knowledge application (-) Knowledge application	No attempt
Questioning strategies	Metacognition (+) Comprehension (-) Comprehension	
Gestures	Emotional (+) Confidence (+) Resilience (despite giving a string of wrong answers)	
Visual imagery		

The questioning technique to check on their understanding of 'word' and 'phrase' can be seen in this excerpt in Table 3:

Table 3: Questioning strategies

Student A	(reads question on worksheet) Which word in paragraph 2 suggests that the hikers managed to get brief sightings of some animals in the jungle?
Teacher X	Yes, ok, now first of all, you have to know that they are asking for a single word. So just go to one word and this is a right there question. Right. What does it mean? You go straight to the passage, find that word in paragraph 2, copy it, you get your marks. B, ok question 2 is similar, which word, so it's a right there also, they ask for one word. How about question 3 B, can you read question 3 for us?
Student B	Which 4 word phrase in paragraph 4 tells us that the headlamps were visible from afar?
Teacher X	Yes, ok so 4 word phrase, means how many words must you give?
Student B	4 words
Teacher X	4 words ah, can the 4 words be anywhere in paragraph 4? Or must it be side by side?
Student B	Hmm, side by side
Teacher X	Why do you say so?
Student B	Because (of) the word 'phrase'?
Teacher X	Yes, phrase tells you it must be side by side. Ok, choose 4 words that, kind of like it forms a phrase, put it in. ok? And same for question number 4, 4 word phrase.

The students' understanding of a word versus a phrase aided them in answering the questions independently towards the end of the lesson. When Teacher X went through the answers with them, they were able to respond accurately and confidently for questions that required them to extract phrases from the passage. This is demonstrated in the excerpt below:

Table 4. Independent application

Teacher X	Question 3, can you read the question and the answer? Question 3.
Student B	Answer question 3?
Teacher X	Mmm.
Student B	Uhhh 'twinkled in the distance'
Teacher X	Yes, is it 4 words 'twinkled in the distance' right? 4 words. Yes correct. Okay, here. And lastly, A, what's your answer for question 4?
Student A	Uhhh 'whooped with sheer delight'

Teacher X's use of questioning strategies in guiding students towards active and accurate meaning making is also evident in the text annotation process. Student A initially inferred incorrectly that the hikers in the story were tired because they stopped multiple times during the hike. Rather than dismissing the student's response, Teacher X drew attention to other contextual clues in the paragraph, emphasising that the hikers paused to admire the beauty of the forest at various points, implying that they felt relaxed and happy rather than tired. This is evident as shown in Table 5.

Table 5. Teacher X's questioning strategy

Teacher X	And after an hour he heard rustling. Yeah. Okay so this is describing his journey up, correct? How do you think he was feeling at this point? Ahh.. Every few minutes, you know?
Student A	Uhhh...tired?
Teacher X	Tired ah? Okay. why do you say tired?
Student A	Uhhh...uhh because, like, they stop and then they start. They stop then they start.
Teacher X	Oh he might be feeling tired. Okay... okay, but you know, let me suggest to you something, A. Every few minutes he stop and admire the trees, then admire the sound of the the the leaves, and admire the monkeys... admire the birds... admire the everything up there, the monkeys and all but his feelings, other than tired what could it be? I think he's in quite a relaxed mood, right? I think he's quite in a relaxed, happy mood, right? If you're not relaxed and you're not happy, you won't stop every.. you won't stop and admire the things. "Get out of the way, get out of the way. Let's go up quickly." Right? He doesn't feel rushed. Can you sense that from him? Right? He says about why the sounds and sights...that is his feeling, also relaxed. Know he's in good... good condition...state of mind, climbing this mountain.

As seen in Table 5, Teacher X's comprehensive and vivid explanation of the writer's emotions in the passage significantly enhanced the students' ability to draw more precise inferences. Additionally, Teacher X encouraged students to adopt the writer's perspective, prompting them to engage in critical thinking by asking, 'If you're not relaxed and you're not happy, you won't stop every...' This approach helped students to reflect on the writer's mindset and deepened their understanding of the text.

Teacher X's strategy of guiding students to adopt the writer's perspective not only enhanced their critical thinking but also fostered a deeper engagement with the text. This teaching approach highlights the intricate connections between cognitive and emotional engagement, which becomes even more evident in the interactions between Teacher X and Student A.

The interaction between Teacher X and Student A is represented by the dotted Lines 2 in the EFL. Initially, Student A was seen struggling to infer the meaning of 'weary' in the comprehension text. While it appeared to be an incorrect application of knowledge due to the confusion with the homophone 'wary', it also clearly suggested a lack of comprehension of contextual clues of the sentence. Instead of informing Student A that his response was incorrect immediately, Teacher X facilitated Student A's understanding by providing the context of hikers that have spent long hours from the early morning, hiking up the mountain. Teacher X then invited Student A by questioning him to rethink the context of the sentence and make another guess to the meaning of weary. This is as seen in an excerpt of their exchange in Table 6 below.

Table 6: Teacher X's facilitation in student A's understanding.

Teacher X	What .. what is weary? What do you think is weary?
Student A	Like... umm... It's like ya... you don't really trust your surroundings? And you become wary of the surroundings.
Teacher X	I see.. I see. ok.. ok.. yea. yea. alright. umm Now think about hikers, A. All of them right start out in the morning. They hike until 3 o'clock. So that's about.. 8 hours of hiking? and they all reach there, how would they be feeling?
Student A	Tired.
Teacher X	Tired. Yes. Ok. So for this word, weary, ok it would mean in this context here, tired. The tired hikers.

Despite guessing the meaning of 'weary' incorrectly the first time, Student A proceeded to make accurate inferences based on Teacher X's explanation on the context of the scenario. Evidently, this demonstrated Student A's resilience in participating which eventually aided Student A in understanding the context and meaning of the unfamiliar word better. This initial scaffolding was important in Student A's independent application to comprehension questions. In addition, Student A attributed this success to Teacher X's annotations in the text. This is illustrated in Table 7 below. These findings show the interconnected nature of the various domains in the EFL. It clearly underscores the importance of teaching practices in fostering student engagement which ultimately aids in their application of knowledge to questions.

Table 7: Teacher X's annotation strategies aided in student A's understanding.

Student A	Yes
Teacher X	Which word?
Student A	Uh 'weary'.
Teacher X	Yes
Student A	You wrote in your annotation.
Teacher X	Yes I did. You see that's... that's the beauty of annotating right... you actually wrote the answer out without knowing.

The teaching practices employed by Teacher Y supported the recommendation of the British Dyslexia Association (2017), where the teacher tailored the practices and approach to meet the specific needs of students with SpLD. Table 8 shows various interactions across and within domains, showing the complex process of teaching. As represented by the chain of arrows labelled Lines 3, the use of online tools plays a pivotal role in creating a positive learning environment that nurtures independence. The use of various online tools to facilitate learning and teaching is supported by Daloiso's (2017) suggestion that a reliance on information technology allows for more targeted response to individual student's needs. Inevitably, online tools also accounted for multisensory instructions that simultaneously facilitate engagement through visual, auditory, kinesthetic and tactile (VAKT) senses. Instructions that are simultaneously multisensory are also part of the OG approach which Teacher Y practices.

Findings from EFL 2 (Teacher Y's class)

Table 8: EFL of Teacher Y

Teaching Practices	Behavioural	Application
Online tools (3)	(+) Responsiveness (-) Responsiveness	
Annotation	(+) Compliance (5) (-) Compliance (+) Attention (5) (-) Attention (3)	Independent
Emotionally sound	Cognitive (3)	(+) Guided (-) Guided
Questioning strategies	(+) Knowledge application Metacognition (+) Comprehension (4) (-) Comprehension (4)	
Gestures (4)	Emotional (4) Confidence (3)	
Classroom management (5)	Expressiveness	
Repetitions		
Variation in Intonation		
Explicit Instructions		

The online tool used, Classkick, served as an interactive platform which allowed students to use different ways to input their answers at their own pace and receive immediate feedback. Alongside YouTube video and the share screen function, students were also provided with visual and audio aids to better understand the context of the passage. By minimising barriers and promoting engagement, these tools helped generate positive attention from both students, keeping them engaged throughout the online lesson. This sustained positive attention directly impacted positive comprehension. Through the online tools which offered multi-sensory learning, they were better able to internalise and process the content of the passage. With an improved comprehension, students felt more confident in their ability to grasp concepts, fostering a sense of autonomy. This was evident when they attempted the questions on their own, relying less on scaffolding. This independence is critical in building long-term academic resilience. The increased independence in comprehension tasks, together with confidence, impacted students' emotions. This emotional expression was observed when a student raised his hands in victory upon obtaining the accurate answer. This progression—from online tools to expressiveness—illustrated how strategically implemented online teaching practices can enhance comprehension and overall academic success for SpLD learners. In conclusion, the researchers found that the use of online tools contributed to positive engagement in increased responsiveness, compliance and attention which supported the final outcome of independent application by the students such as the ability to answer the reading comprehension questions accurately and without guidance.

The next chain of interactions, represented by the chain of arrows labelled Lines 4, stems from classroom management. A significant portion of teaching practices follows principles of the OG approach, which is consistently evident in previous research done by the Prep 2 PSLE programmes (Leong, Asjamiah & Wang, 2017). Under the umbrella of teaching practices, effective classroom management ensures a structured and supportive environment, where learners feel safe and guided. Teacher Y's effective classroom management included engagement through active learning, providing positive reinforcement and motivation, as well as adapting to specific needs of the students throughout the lesson.

In the following example in Table 9, Teacher Y deliberately asked for student E's response as student E had not been participative in answering questions. There was a very long pause and Teacher Y continued with the lesson and interacted with Student D, only to then realise that Student E had already responded by typing in the chat box. Upon realisation, Teacher Y immediately acknowledged and praised student E for the efforts, adding to Student E's motivation and contributed to Student E being more participative at the later stages of the lesson.

Table 9: Acknowledging responses

Teacher Y	Which word in paragraph three tells us that the hikers were physically exhausted when they reached the base camp? Okay, so go back to paragraph three. Which word tells you that the hikers were physically exhausted? E, you want to try this one? D, let's give E a chance. Which word, E? Which word tells you that the hikers were very physically exhausted? One word only. (Long pause)
	(After 2 minutes of interaction between Teacher Y and Student D)
Teacher Y	E, I just saw that you typed in your answer. Sorry I didn't see that you typed in the word 'weary' in the box. Yes, yes E. Okay. I thought you would turn on your mic to answer me. I see your word 'weary' now. Thank you E for participating.

These management techniques are strongly associated with the sustained attention of the students, or their positive responsiveness as indicated in the EFL table.

In addition, Teacher Y used explicit instructions, an emotionally-sound approach and questioning strategies that are cognitive in nature- that is, encouraging students to think and reason through asking high-level questions (Blything, Hardie, & Cain, 2020) and supporting the constant interaction between students' schema and the texts (Ren, 2023). For example, in helping students to picture the setting of the passage (Table 10) and to grasp the vocabulary 'Flora and Fauna' (Table 11), Teacher Y made reference and drew parallels to a video the students had watched just before they read the passage.

Table 10: Picturing the setting

Teacher Y	Okay, so basically that video gives you uh... make you understand what it's like... what is the experience like climbing Mount Kinabalu. Okay? So, you saw her climbing up, you saw a lot of trees around her...umm...the stairs...climbing the stairs and the views and the sights, which is what is described in the passage. Okay, now we read the passage.
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Table 11: Expanding on vocabulary

Teacher Y	'Flora and fauna', it refers to the flowers, all right, and the trees and the greenery. Right? You saw that in the video, right? Because hiking is not just about climbing to the top. You should also enjoy the process of moving upwards; the environment and the scenery around you.
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However, attention did not always equate to better comprehension. Despite being actively engaged, the student showed cases of inaccurate comprehension. This discrepancy can arise due to various factors, such as difficulties with processing information or the complexity of the texts, despite their active participation. To bridge this gap, Teacher Y utilised targeted questioning techniques as seen in Tables 12 to 14 below. Teacher Y employed both higher order questions to stimulate deeper thinking to help students process information more critically and lower order questions to refine their understanding before extracting key information from the passage. These steered students towards accurate comprehension, contributing to their confidence, driving students to attempt other questions on their own. Eventually, both students showed independence in completing comprehension questions on their own.

Table 12: Lower order- Recall question

Teacher Y	We started at eight in the morning"... Same as the lady in the video, right? She also started her climb at eight o'clock in the morning.
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Table 13: Higher order questioning

Teacher Y:	Okay, the climb refers to the climb the next morning when they woke up, okay? "...Wearing a woollen cap with a headlamp attached to it." Why do they need a headlamp, D?
Student D:	To see better in the dark...
Teacher Y:	Yes, because remember, they went... they are going to climb up to the peak in the early hours of the morning, meaning like 5, 6am where it's still pitch dark. So, they need a headlamp. Okay?

Table 14: Higher order questioning

Teacher Y	All right, let's answer question one and two together, then you do three and four on your own. Okay, question one. "Which word... in paragraph two suggests that the hikers managed to get brief sightings of some animals in the jungle?" 'Brief sightings' means they managed to see some animals in the jungle. See very briefly. Okay?
	(Teacher Y draws a pair of eyes below the word 'sightings' for question one)
Teacher Y	'Sightings' means being able to see. Anyone managed to spot the word? It's in paragraph two. So, you need to go back to page two. Which word in paragraph two...
Student D	'Glimpse'?

Overall, this interaction showed how a structured and supportive learning environment can effectively guide students from focused attention to greater autonomy in their learning, ultimately fostering both academic growth and self-confidence. These classroom management approaches and questioning strategies are critical not only in helping students better comprehend the reading passage but also in building their confidence as the lesson progresses. This is as seen in Table 15. This is evident in students' body language and expressions, which suggest they were comfortable responding to teacher Y, with one student even letting out a celebratory expression upon answering a question correctly.

Table 15: Emotional Engagement

Teacher Y	E, do you need help with question four? Or you're okay? Just remember that...
	(E shows a thumbs up to Teacher Y)
Teacher Y	Okay, you're good. Question four... paragraph four, it's quite long, yeah. So, you need to refer to the second part of paragraph four which is on page three.
	(D enters)
Student D	Okay, I'm back.
Teacher Y	Okay. E I have marked your answers. All right, both of you. Well done! Both of you got the answers correct. Wuhu!
	(D and E celebrate on screen)

Another chain of interaction represented by the bolded Lines 5 started with students' distraction or negative attention. During the lesson, student A was observed to be doodling on the online worksheet while student B was seen playing with his soft toy and putting it close to the video camera. Such instances of distraction led to negative compliance as they did not follow Teacher Y's instruction to highlight or type their answers on the worksheet. This lack of compliance prompted Teacher Y to utilise classroom management techniques to redirect students' behaviour. As seen in Tables 16 to 20, throughout the lesson, Teacher Y successfully directed both students to complete the expected tasks and apps, and managed to encourage them to participate and respond to her questions.

Table 16

Teacher Y	Yeah, go back to page two. Okay? So, we are... what do you think the passage is gonna be about, E? E, I can't see your face. Can I see your face, please?
	(E pulls screen to show face)

Table 17

	(D show Teacher Y his stuffed toy)
Teacher Y	Okay, I'm going to read paragraph one. Okay. Please listen carefully because you are going to be answering some questions later. "I am not a mountaineer." Okay, what do you think a mountaineer means?

Table 18

Teacher Y	I double click on it and I... it led me to a website. Ah. Okay so E has also found the meaning of Borneo for us. Borneo has a distinction of the only island in the world that is shared by three countries. Malaysia Indonesia and Brunei. So Borneo is basically umm...(clicks tongue) uh... (clicks tongue) uh what's that... an island that's made up of Malaysia, Indonesia and Brunei. Okay? All right. Let's move back. Thank you for sharing, E. You're very fast. Let's go back to ClassKick. Okay?
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Table 19

Teacher Y	Very good, I see D highlighting as I move along. Okay good, E as well. Okay, question two: "State two reasons why Helen was bored." Okay E, what should we highlight in this question? E, turn on your mic and answer. You can respond and then we can try...
Student E	'Two reasons'.
Teacher Y	'Two reasons', okay good. Highlight 'two reasons'. 'Why'...okay, you also need to highlight 'why' because 'why' is an instruction word.

Table 20

Teacher Y	Very good, I see D highlighting a few things. Okay. They ask you "how do we know"... Okay so, highlight 'how' because 'how' is a instruction word. 'How'... 'How' means the manner, right? Uhhmm...
	(E highlights 'enjoyable and easy')
Teacher Y	"we know that Helen's walk to the beach was enjoyable and easy"...Very good! E highlighted 'enjoyable and easy'.

With this, both students displayed positive compliance and they were able to follow instructions and engaged with tasks given to them. This shift is not merely about obedience but about genuine participation, where students are motivated to engage because they feel supported and connected to the learning material. As they experienced success through positive compliance, they gained confidence in their ability to complete tasks independently. This led to greater independence where learners take ownership of their learning process, requiring less external guidance and showing a more proactive approach to tasks. Overall, through this progression, classroom management acted as the bridge between initial disengagement and eventual self-directed learning.

In addition to analysing the two teachers' lessons through EFL tables and specific interactions, the researchers explored the interconnectivity across domains. Beyond this, common themes were identified from the recorded videos and are discussed below. Despite differences in instructional styles, both Teacher X and Teacher Y adhered to the Orton-Gillingham (OG) approach and the RIMAIR structure prescribed by the Prep 2 PSLE programme. This aligns with findings by Leong et al. (2017) on the consistent use of the OG and RIMAIR structure.

Simultaneously multisensory

Firstly, both teachers used a variety of multisensory resources to activate their various learning pathways. Classkick was used not only as an online worksheet for individual students to work on, it was also used as a tool to incorporate short quizzes such as Multiple-choice Questions and Short-Answer Questions to test on students' understanding of what they have read in the text. Moreover, Classkick allowed for the embedding of links which made it convenient for the teachers to search and present to students important background knowledge. This aspect was important in aiding students' understanding of the text and ultimately their application of learnt skills and strategies to the questions. This was observed in Teacher X's class where A made an accurate application and attributed it to Teacher X's annotations on the text.

Moreover, the use of YouTube videos further enhanced the visual and auditory experience for students. Undoubtedly, this enhanced the students understanding of the text as evidenced by Teacher X's lesson where student A had made references from what he had watched in the video to the information in the comprehension text. He questioned why the hiker in the text was welcomed with a buffet spread as opposed to the YouTube video who had a simpler meal. Evidently, this multisensory approach helped students to make meaningful connections between text and real-life scenarios, further enhancing their knowledge and understanding.

Notably, the curriculum developers from Prep 2 PSLE had pre-planned these resources and materials for online classes and they were made readily available for all teachers.

Through this illustration, it is clear that there are interactions at play beyond the domains of student engagement; spanning across other domains of teaching practices and students’ application.

The study on the effectiveness of Orton-Gillingham-based instruction with Singaporean children with dyslexia highlighted the importance of a multisensory approach in learning. The Orton-Gillingham programme, which incorporates visual, auditory, tactile, and kinesthetic senses, showed positive results in improving word recognition and word expression skills in children with dyslexia. The use of simultaneous multisensory instruction in teaching language components was found to be intensive, direct, and explicit, leading to significant improvements in reading abilities. This underscores the effectiveness of multisensory techniques in enhancing learning outcomes for individuals with dyslexia. (Hwee & Houghton, 2011)

Emotionally-sound approach

Both teachers also practised an emotionally-sound approach in the online classrooms. This was evident in various instances during the observations. Teacher X always acknowledged all students’ responses even though they were inaccurate at times. The students were then guided with question prompts to help them derive an accurate answer. This encouraged emotional engagement in students. Fostering a positive learning environment allows students to be more proactive in participating without hesitating to share their answers and opinions. This is evident in Teacher X’s class where A and B continued to make predictions and responded to Teacher X’s prompts throughout the lesson.

Similarly, as seen in Table 21 and 22 below, Teacher Y reinforced a positive learning environment by giving constant encouragement through praises that were specific to the child’s progress and abilities as well as availing herself for support.

Table 21. Providing assurance

Teacher Y	Let me know if you need help?
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Table 22. Verbalising appreciation

Teacher Y	I saw you typed the answer. Thank you for typing in and participating.
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Both Teachers X and Y also consistently checked in with the students. They kept asking their students if they had any difficulties and whether they needed any help. Both teachers also ensured to check-in with their students on their audio and visual to ensure

that their students are able to follow through the lesson without compromises in technical difficulties. It is evident that both Teacher X and Y fosters a positive learning environment; providing a safe space for their students to make errors and learn and giving encouraging and constructive feedback. Given the stigma and misconceptions that surround the learning abilities of students with SpLD, an inclusive and supportive learning environment is crucial in developing their motivation and self-esteem (Khalid & Anjum, 2019).

Cognitively engaging

Through text and question analysis, both Teachers X and Y consistently stimulated their students' cognitive abilities to engage deeper with the reading material. A range of lower and higher level questioning strategies were evident in both teachers' interactions with students.

According to Table 23, it is evident that both teachers employed the use of recall to activate students' prior understanding and retention of topics they have learnt.

Table 23 : Number of higher and lower level questions in both classes.

	Questioning Strategies	
	Higher level	Lower level
Teacher X	22	16
Teacher Y	16	25

As seen in Table 24 and 25, it is evident from these extracted conversations across both classrooms that both teachers prompted students with questions to review what they have previously learnt. Students with specific learning disabilities (SpLD) often struggle with working memory, which plays a crucial role in retaining and processing information

Table. 24

Teacher X	What do you remember about the lesson last week?
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Table. 25

Teacher Y	What are the two types of questions we've learnt?
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(Alloway et al., 2005). As such, having a review of prior week’s work done in the previous lesson is crucial to help them retain the knowledge that they have learnt.

Another type of lower level questions, the instructional questions, were also posed during the lessons. This is as seen in Table 26 below.

Table. 26

Teacher Y	Can you give me a thumbs up when you are ready?
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As explained by Nguyen & Nguyen, (2023), these questions allowed the teachers to assess the understanding of the students, encouraged participation, as well as aided in their confidence boost. Consequently, students in both classes were observed to be asking questions to seek clarifications, thereby showing evidence of cognitive engagement.

Both teachers also showcased the use of higher level questioning strategies which prompts students to analyse and synthesize the comprehension text. These questions include the use of vocabulary-context, making predictions and evaluative skills.

Table. 27

Teacher X	What is a mountaineer?
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Table. 28

Teacher Y	What is the meaning of sheer?
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These vocabulary-context questions were not just to assess their prior knowledge and exposure, but were also integral for them to grasp the content of the text.

Table. 29

Teacher X	What do you think is flora and fauna?
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The question posed by Teacher X in Table 29 is an example of a vocabulary based question assessing the student’s prior knowledge, as well as the use of contextual clues to make informed guesses. Higher level questions relating to making predictions were also captured in both lessons.

Table. 30

Teacher X	Why are there headlamps on other hikers? Why is it twinkling in the distance?
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In this case, students were guided to form logical reasoning and to make predictions.

Table. 31

Teacher Y	What do you think the passage is going to be about?
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On the same note, Teacher Y posed the above question to the class after looking through all the listed questions from the text. This backward strategy encouraged students to use the contextual clues from the questions to form a prediction regarding the content of the passage.

Table. 32

Teacher Y	Do you think 'Right There' questions are easy?
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The question posed in Table 32 requires the students to recall the concept of Right There questions and evaluate on its difficulty level.

Evidently, these questioning strategies, both lower and higher level questions, require students to think critically by analysing the text, inferring meaning from the contextual clues and extracting and synthesising accurate and appropriate responses. These skills play a crucial role in aiding students to have a deeper engagement and understanding with the reading material and at the same time, enable better retention of information (Thamrin et al., 2019).

Direct and explicit instruction

Teacher X and Y also employed the strategy of text annotation in delivering the comprehension lesson. Annotation is a useful method to enhance the meaning-making process for all students, especially those with reading difficulties, by making explicit connections to different parts of the text. The teachers' use of annotation for a significant part of the online comprehension lesson contributed to clarity and comprehension and kept the students cognitively engaged as they comprehend the highly descriptive passage on Mount Kinabalu, which contained numerous unfamiliar vocabulary words. Beyond the comprehension passage, Teacher Y also instructed Student D and E to

annotate the comprehension questions to assist them in effectively extracting accurate relevant information from the text. In Teacher X's lesson, Student A was observed to have made references to the text annotations made by Teacher X to help him derive the answers for his written responses.

Adeptness with online tools

A noteworthy finding from the data of both online classrooms has revealed differences in teachers' utilisation of resources. All resources used were similar across both classrooms. Links embedded in the text provided accessibility and efficiency in sourcing for the geographical location of Mount Kinabalu. Moreover, multiple-choice questions were also strategically placed in the text to test students' understanding of vocabulary terms such as 'prominently'. Notably, the differences in both teachers' teaching styles resulted in different ways in which the pre-planned resources were utilized. While Teacher Y displayed a separate worksheet on her presentation screen, Teacher X presented the worksheet in edit mode. As such, he was not able to use the functions accurately to maximise the engagement of the material. Moreover, the confusion with the fill-in-the-blank function also resulted in a wrong interpretation of the vocabulary term 'prominently' which carries all three meanings as per Table 33.

Table. 33

Teacher X	Oh ok. Yeah now think about it. You're at somewhere high up, one third of the journey. You're pretty high up already with the fog, right? You know and in the background ah, the peak of this Mount Kinabalu that you want to conquer its so high *inaudible* And it's very prominent. So not just proudly any words *inaudible* Boxu?
Student B	Hmm? I can't hear.
Teacher X	What...what's uhh...what other words do you have in mind for prominently?
Student B	Confident?
Teacher X	Confidently. Okay, so let's take a look at the questions that we have. Okay, so prominently...here. Do you think it would be...which would be a better answer? Noticeable, striking...strikingly or stands out? Prominently. So...

This finding suggests the importance of teachers' adeptness to the learning tools that are readily available to them. Utilising these resources correctly would ensure enhanced engagement and understanding for students.

An interesting observation from both online classroom lessons were the brief moments where students were observed to be distracted. This distraction stems from the home learning environment that they were in. Online learning allows for the seamless tuning in and out of lessons by switching off the audio and video functions. As observed in Teacher X's classroom, C switched off her video and this makes it impossible to access her engagement and participation level in that session. Similarly, in Teacher Y's classroom, there were several instances in which D appeared to be talking to someone while the class was ongoing. As D's audio was muted, this was only justified through the observations of gestures. D pointed to the left and appeared to be talking without unmuting his audio. This makes it challenging for researchers to accurately assess and conclude on his engagement at that moment.

Impact of students' needs and abilities on learning outcomes

The analysis of Teacher X and Y's lessons in this study have shown that the engagement and learning output of students in online learning are influenced by their individual needs and capabilities. Learning needs according to this paper's findings refers to the difficulties and challenges faced by SpLD students during online learning and their observed social and emotional needs during the course of the lessons. Learning output could refer to the tangible or observable results of the learning process, such as projects, assignments, or assessments that students produce. It might also be used to describe the overall performance or achievement of learners at the end of a learning experience.

Teacher Y actively used explicit and repeated instructions in her lesson delivery to ensure the students are on task, to direct students to specific parts of the comprehension passage and to emphasise the keywords that they should be highlighting in questions. This teaching practice of incorporating repetitions proved to be effective in enhancing students' concentration and maintaining on-task behaviour, ensuring they remain engaged and connected even in the absence of the teacher's physical presence. While there were instances of Student D and E fidgeting, Student D misidentifying keywords, and seeking clarification from Teacher Y, on overall both the students were observed to comply with verbal instructions. This compliance significantly contributed to their ability to generate accurate verbal and written responses as seen in the EFL.

Another aspect of learning need for SpLD students observed in this study is the importance of supporting their emotional needs as it impacts their engagement and learning output in online learning. This is in line with the OG principle of being emotionally sound in lesson delivery as discussed in the earlier part of this discussion. Students with SpLD usually have lower self-esteem and learned helplessness (Woodcock

& Hitches, 2017) In the online classroom setting, where the ability to actively observe students' body language and facial expressions is constrained to the camera frame, it is imperative for teachers to prioritise addressing students' emotional learning needs by focusing on their verbal expressions.

Table. 34

Teacher Y	E, you looked a bit lost, are you ok?
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This proactive approach is essential to foster engagement and active participation in the lesson so that weaker learners will be motivated to unmute their virtual microphones and respond to the teacher. As seen in the EFL of Teacher X and Y's lesson, the emotionally sound approach aided students' willingness to participate in the class by sharing their thoughts and answers and motivated the students to respond to questions asked by the teacher even though there might be inaccuracies in their responses. This shows that recognising students' emotional needs and verbally acknowledging their efforts becomes paramount in an online learning environment. This approach is essential to maintaining both cognitive and emotional engagement, ensuring sustained motivation for learning, and, most importantly, enabling students to gain as much knowledge as possible. In both physical and online classrooms, creating an environment that fosters a sense of mastery, encourages effort, and provides opportunities for success are crucial to prevent the development of learned helplessness in learners.

It is crucial to recognise that online learning may not be suitable for every student and a comprehensive understanding of learner attributes is necessary to support curriculum developers in creating high-quality online courses tailored to meet students' needs. Additionally, not all students possess the necessary attributes for online learning, particularly those with SpLD, given the variations in learning and cognitive styles.

Overall, the findings of this study have shown that teaching practices play a pivotal role in fostering engagement across various domains, including behavioural, cognitive, and emotional aspects, as evidenced by the interactions within the engagement framework for learning (EFL) for Teacher X and Y's lessons (Fredricks, 2004). The intricate dynamics observed within each EFL highlight how these teaching approaches intricately influence and facilitate student involvement in the lesson. In other words, teachers' methods not only shape students' observable actions and participation (behavioural engagement) but also impact their cognitive processes, such as critical thinking and problem-solving (cognitive engagement), as well as their emotional connection and investment in the learning experience (emotional engagement). This interplay of factors across the components of the EFL underscores the significance of intentional instructional strategies in promoting a comprehensive and enriching engagement experience for students.

IMPLICATIONS

This present study has important implications for educators and researchers in the field of online teaching. The Engagement for Learning (EFL) framework serves as an important tool for educators to use so as to reflect upon their teaching practices and their outcome on student engagement and application.

By using the EFL to critically reflect upon their teaching methods, teachers can then make improvements in their lesson delivery and ultimately optimise students' learning outcomes. Additionally, the findings from this study highlighted the importance of equipping teachers with the necessary knowledge and skills to successfully plan, navigate and execute a lesson on digital platforms. As online lessons are increasingly becoming a commonplace in today's context and digital tools continue to evolve with time, professional development is crucial to ensure that educators remain relevant to meet the needs of their students while also ensuring an engaging learning experience. This further reiterates the importance of institutions investing in professional development of educators.

LIMITATIONS

There are potential limitations in this study that may impact the generalizability of the results. Firstly, this study relies on a small sample size of two classes being observed for an hour each, with each lesson focusing on only open-ended Reading Comprehension. This limits the ability for the researchers to generalise findings to a larger population and other lesson components (Synthesis & Transformation, Grammar, Editing) of the Prep 2 PSLE programme.

The present study relies heavily on the researchers' interpretation of student engagement based on lesson observations. The absence of self-report data collection, such as questionnaires to capture participants' emotional engagement and perspectives of the lesson, may hinder the researchers from having a comprehensive understanding of student engagement. Furthermore, other aspects of engagement could be present but not observable within the camera frame and have gone unnoticed by the researchers. Students may also not have overtly expressed their emotions and behaviours due to the nature of online learning. The physical learning environment where students were situated during the online lessons were also not considered, an aspect that might influence student engagement and learning outcomes.

Finally, the presence of research bias, particularly concerning differences amongst the researchers in categorising their observations across various domains of the EFL framework, raises concerns about the objectivity and reliability of the study's interpretations. These limitations underscore the need for caution when interpreting the findings and highlight avenues for future research to address these gaps.

RECOMMENDATIONS FOR FUTURE RESEARCH

While the present study offers valuable insights, future research with a larger sample size and a more extensive collection of students' independent applications of skills could yield more generalizable and conclusive findings. Incorporating self-reported data from students could further enhance our understanding by providing a student-centric perspective on their engagement during online lessons. Specifically, the inclusion of questionnaires to assess students' emotional engagement, which may be less accessible through direct observation, could offer richer data. Furthermore, integrating educators' self-reported data, such as reflective questionnaires or interviews, would not only enhance the validity of the findings but also allow for diverse interpretations, particularly regarding educators' perceptions of online tools in the classroom. As the current study focused on students with Specific Language Impairment (SLI) and Dyslexia, future research should explore potential correlations between various Specific Learning Differences (SpLDs) and student engagement in online educational settings. To broaden the scope of this study, future researchers could examine the factors that influence student engagement, the effective application of skills in Prep 2 PSLE in-class lessons, and the challenges associated with transferring these skills to students' broader academic work beyond the Prep 2 PSLE context.

CONCLUSION

The data from this research points to the effective use of online tools to enhance cognitive engagement and critical thinking in learners. It also illustrates the diverse ways educational therapists utilise the same tool in their instructional methods. Findings from this study will also inform the Prep 2 PSLE programme of effective online teaching practices and multimedia classroom resources so that these can be integrated into training for all its teachers to equip them with necessary skills to conduct virtual lessons.

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