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Evaluating the Usability of the Flipbook-EVI Module for Vocabulary Instruction in Distance Learning: Insights from the TUP Framework

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Abstract: - This study investigates the usability of the Flipbook-EVI (Explicit Vocabulary Instruction) Module in distance learning, designed to address challenges faced by underprivileged and rural students in Malaysia in adapting to the newly implemented CEFR curriculum. The module offers mobile-friendly, self-paced vocabulary acquisition through interactive multimedia instruction, aligned with the Common European Framework of Reference for Languages (CEFR). Using the Technology, Usability, and Pedagogy (TUP) framework, this third phase of a design and developmental research (DDR) initiative evaluates the module's usability through semi-structured interviews with six ESL teachers in Malaysia. The interviews were transcribed and analyzed using thematic analysis, revealing key themes related to teacher engagement, module usability, student outcomes, and suggestions for improvement. This study fills a gap in research on the usability of digital tools for vocabulary instruction in rural and underprivileged settings, particularly within the context of CEFR implementation in Malaysia. The thematic analysis highlights the module's strengths, such as the integration of multimedia elements, flexible accessibility, the alignment of the Flipbook-EVI module with the CEFR framework, consistent design and supplementing traditional instruction, and a self-paced learning experience. It also identifies weaknesses like unreliable internet connectivity and limited device availability, challenges in sustaining student engagement and the need for teacher guidance and support for effective integration. The findings offer practical implications for integrating digital tools into vocabulary instruction, providing flexible, scalable options for supporting student progress remotely.

Keywords: "Usability, Flipbook module, TUP Framework, Explicit Vocabulary Instruction and CEFR".

I. INTRODUCTION

The integration of digital tools in language education, particularly in vocabulary acquisition, has garnered increased attention owing to the rise of e-learning and distance learning approaches [1]. Vocabulary development is crucial for language acquisition [2] and children in rural and underprivileged areas sometimes face significant challenges in obtaining resources for English language learning [3], [4]. The implementation of the Common European Framework of Reference for Languages (CEFR) curriculum in Malaysia is compounded by challenges faced by instructors and students, especially in underprivileged contexts, as they endeavor to adjust to new educational demands [5], [6]. The Flipbook-EVI Module is a solution designed to enhance explicit vocabulary training within the CEFR curriculum, enabling students to engage in self-paced learning via interactive multimedia resources. Nonetheless, the functionality of such a digital tool, especially in disadvantaged and rural environments, necessitates a thorough assessment to confirm its practical efficacy.

This study explores the usability of the Flipbook-EVI Module from the perspective of six ESL teachers in Malaysia, using the Technology, Usability, and Pedagogy (TUP) framework. Developed by [7], the TUP framework offers a comprehensive way to evaluate how well a digital tool works in terms of its design, functionality, and alignment with teaching goals; while also considering how user-friendly it is for both teachers and students. The results indicate that the Flipbook-EVI Module presents a viable approach for improving vocabulary instruction, with educators emphasizing its interactive and engaging characteristics, along with its suitability for various learning styles and proficiency levels [8], [9], [10]. The incorporation of multimedia elements, such as images and animations, improves the aesthetic quality and retention of vocabulary acquisition for students [11]. The research delineates areas for improvement, encompassing Cross-Platform Compatibility, Responsive Design, augmented customization of the module via the incorporation of adaptive learning strategies such as gamification, personalized feedback, varied instructional methods, and a blended learning approach that integrates the Flipbook-EVI module with face-to-face instruction. The findings of this study can offer valuable insights into the design, development, and use of digital tools for language learning, especially when it comes to building vocabulary. These insights can

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be helpful for educators, researchers, and technology developers as they work to support language learners in a variety of educational settings [10], [12], [13].

This intends to evaluate the module's efficacy in surmounting obstacles to vocabulary acquisition and retention in distant learning environments. The study's findings enhance the existing literature on digital tools for vocabulary training, specifically focusing on their use in rural and disadvantaged settings, particularly when CEFR implementation into the existing curriculum is concerned.

II. Literature Review

A. Digital Tools in Vocabulary Instructions

The incorporation of digital resources in remote vocabulary education has increasingly become prevalent, especially within the framework of online learning settings. Digital instruments, including smartphone applications, online flashcards, and video-based tutorials, have become indispensable for facilitating remote vocabulary acquisition. These technologies facilitate flexibility and accessibility, enabling learners to practice vocabulary at any time and in any location [14]. Nonetheless, notwithstanding the benefits, obstacles emerge in the execution of digital technologies in remote education. Critical challenges encompass restricted internet access for certain learners, inadequate digital literacy among educators and students, and an absence of appropriate pedagogical frameworks for the efficient integration of these tools in remote education [15]. The efficacy of digital tools for vocabulary training in remote environments frequently hinges on the degree of interactivity and learner engagement, which can be challenging to sustain in the absence of direct teacher-student interaction [16].

Digital tools are proposed to augment vocabulary acquisition in distance education by facilitating more autonomous and personalized learning experiences. Language learning platforms and mobile applications facilitate vocabulary practice through gamification and spaced repetition strategies, which have been shown to enhance retention [17]. Some authors contend that although digital technologies present considerable potential, their efficacy is frequently constrained by the learner's motivation and the quality of the digital content[18], [19]. The difficulty of maintaining motivation in a remote learning context persists as a significant concern, especially when students are isolated from a nurturing classroom atmosphere [19], [20].

Digital technologies are essential in remote vocabulary training, providing diverse resources that accommodate various learning styles and requirements. Mobile learning applications, online platforms, and multimedia content enable students to engage with vocabulary at their own pace, obtain immediate feedback, and partake in interactive activities that augment learning. However, the efficacy of these tools in remote education necessitates sufficient infrastructure, digital proficiency, and a meticulously organized pedagogical strategy that promotes active participation and profound learning.

[21] underscore the significance of incorporating digital technologies in remote vocabulary learning, especially in the context of the burgeoning field of distance education. Their research indicates that mobile applications like Duolingo and Memorize provide learners with possibilities for individual vocabulary drills, resulting in enhanced retention and increased learner autonomy. [15] emphasize the digital divide as a significant obstacle, particularly in rural regions, where restricted internet access and insufficient digital resources can hinder the efficacy of these tools. They advocate for increased investment in digital infrastructure to close this gap. [22] assert that interactivity is essential for the efficacy of digital tools in distance education, recommending the incorporation of elements such as quizzes, flashcards, and discussion forums to sustain learner engagement. [22] warn that, although the advantages of digital tools, motivation, and self-discipline are crucial for their efficacy, indicating that students in distant learning settings necessitate additional help to maintain engagement.

Therefore, digital tools have several advantages for remote vocabulary instruction, allowing learners to access and interact with educational resources in adaptable and engaging manners. Nonetheless, obstacles such as restricted internet access, inadequate digital literacy, and sustaining learner motivation must be confronted to fully harness the potential of these tools. The effective deployment of digital technologies in distant education depends on both technology and deliberate pedagogical practices that foster interactivity, engagement, and learner autonomy. Future initiatives must prioritize closing the digital divide and offering training for educators and students to improve digital literacy and optimize the efficacy of these technologies in vocabulary instruction.

B. Challenges in CEFR Implementation in Malaysia

The adoption of the Common European Framework of Reference for Languages (CEFR) in Malaysia represents a substantial educational reform intended to standardize the instruction and evaluation of the English language. The CEFR-aligned curriculum has sought to improve English language competency among Malaysian students by

establishing a clear and uniform framework for learning, teaching, and assessment [23]. Notwithstanding the prospective advantages of the CEFR, certain obstacles have arisen, especially regarding the adaptation of the framework to the local situation. A primary concern is the inadequate training for educators, many of whom struggle to connect their instructional methods with CEFR criteria. Moreover, there are apprehensions over the appropriateness of CEFR levels for Malaysian pupils, particularly in rural regions where English proficiency is typically inferior to that in urban locales [24]. Furthermore, the shift to CEFR has imposed significant pressure on resources, resulting in schools encountering deficiencies in instructional materials and support systems [25].

Certain experts contend that although the CEFR provides a solid framework for language acquisition, its execution in Malaysia has encountered challenges. The framework necessitates substantial alterations to align with the linguistic and cultural environment of Malaysia [24]. The absence of tailored resources and localized training programs has constrained the efficacy of this adaption. Some researchers argue that the shift to CEFR has occurred too swiftly, resulting in difficulties for instructors and students in adapting to new pedagogical and evaluative approaches [23].

The implementation of the CEFR in Malaysia signifies a significant transformation in English language education, aimed at enhancing students' language proficiency and matching it with worldwide benchmarks. This transition has encountered some problems, especially with teacher readiness, resource accessibility, and the appropriateness of CEFR levels for Malaysian students. Successful implementation necessitates alignment with the CEFR and adequate support in teacher training, resources, and policy modifications to meet the distinct requirements of the Malaysian educational landscape.

[26] Emphasize that although the CEFR offers a beneficial foundation for English language acquisition, the Malaysian education system is encountering difficulties in its practical application. A deficiency of adequate teacher preparation and familiarity with the CEFR paradigm has led to inconsistent teaching approaches. [27] similarly address the challenges rural schools encounter in adopting the CEFR, attributed to students' weaker English proficiency and restricted access to CEFR-aligned resources. Mokhtar (2020) underscores the necessity for more localized instructional resources and customized professional development initiatives to assist educators in this transformation. [28] observes that the uniform use of CEFR may not accommodate Malaysia's varied linguistic environment, advocating for increased flexibility and contextual adaptability. [23] contend that the swift implementation of the CEFR has created a learning curve for both educators and learners, hence impeding curricular adaptability.

In conclusion, the difficulties in CEFR implementation in Malaysia mostly arise from concerns over teacher preparedness, resource accessibility, and the framework's relevance to local language and educational environments. The successful application of CEFR necessitates more than mere adoption of the framework to elevate English language skills to worldwide norms. It requires extensive teacher training, the creation of localized resources, and a more gradual transition process to offer sufficient support for both teachers and pupils. To address these problems, legislative modifications and continuous support systems are crucial to customize the CEFR framework for Malaysia's varied educational environment.

C. The Technology, Usability and Pedagogy (TUP) Model

The Technology, Usability, and Pedagogy (TUP) Model is a comprehensive framework designed to evaluate the efficacy of digital learning tools by analyzing the convergence of technology, usability, and pedagogy. This paradigm is especially pertinent in educational technology, highlighting the necessity for digital tools to be both technologically robust and user-friendly, as well as pedagogically aligned with learning objectives [29]. The primary advantage of the TUP model is its comprehensive approach, wherein technology is assessed not independently, but concerning its effectiveness in enhancing teaching and learning methodologies. Nonetheless, a persistent concern with the TUP paradigm is the appropriate balancing of these three domains. Certain educational technologies demonstrate technological innovation yet may lack usability or pedagogical alignment, resulting in an imbalance that can impede their overall efficacy in the classroom [29]. Moreover, ensuring that educators are sufficiently prepared to utilize all three components of the TUP model is a critical issue, particularly when implementing new technology.

The TUP model provides a thorough framework for assessing educational technology by incorporating aspects of technology, usability, and pedagogy. The multidimensional approach guarantees that educational tools are evaluated not only for their technological features but also for their usability and adherence to effective pedagogical concepts. As educational institutions increasingly integrate digital technologies, the TUP model provides a significant framework to ensure these tools enhance the learning environment effectively.

It is asserted that the TUP model is essential for assessing digital tools in education, as it maintains a balance among technological technology, usability, and pedagogical suitability. Their research indicates that tools assessed through the TUP model are more likely to improve learning outcomes. [21] similarly, examine how some digital tools may demonstrate technological superiority yet fail in usability or pedagogical alignment. They contend that this disparity is a substantial obstacle to the efficient implementation of technology in the classroom. [30] emphasize the significance of teacher training in the effective execution of the TUP model. They indicate that inadequate professional development may hinder instructors' successful use of the paradigm, leading to the underutilization or misuse of digital resources. Dahaman et al. (2019) propose that although the TUP model provides a valuable framework, its implementation necessitates additional practical instructions for educators and administrators. [32] asserts that pedagogical considerations frequently become secondary to technological aspects, potentially compromising the fundamental objective of employing digital tools in education.

In conclusion, the TUP model is a robust paradigm that examines the essential interaction of technology, usability, and pedagogy in assessing digital educational resources. Although it offers a thorough framework for evaluating these technologies, issues remain in achieving equilibrium across the three domains and guaranteeing sufficient teacher training. The increasing integration of digital tools in education underscores the continued relevance of the TUP model in assisting educators and policymakers in selecting technologies that significantly improve learning outcomes. Nevertheless, an enhanced focus on practical application and a more profound integration of educational ideas will be essential to optimize the model's potential.

D. Theoretical Framework

This research uses the Technology, Usability, and Pedagogy (TUP) framework to assess the Flipbook-based Explicit Vocabulary Instruction (EVI) module. Figure 1 shows the elements of TUP Framework by Bednarik, 2002. The TUP framework emphasizes three dimensions: technology, usability, and pedagogy. The technology component assesses the module's functionality, cross-platform compatibility, and responsiveness, emphasizing its performance across many platforms and its incorporation of multimedia elements. The usability factor assesses the module's user-friendliness and ease of use, promoting seamless navigation and engagement for both educators and learners.

The pedagogical dimension evaluates the module's alignment with educational aims and indirectly highlights its role in facilitating explicit vocabulary instruction. The study uses feedback from six ESL teachers in Malaysia to evaluate the Flipbook-EVI Module from multiple viewpoints. The TUP framework provides a comprehensive evaluation of the module's strengths and weaknesses, particularly in its support of vocabulary instruction within the CEFR-aligned curriculum. The TUP framework suggests a systematic approach for evaluating the usability of the Flipbook-EVI Module as well as recommendations for improving digital tools in language instruction. This approach makes sure that both teachers and learners benefit from advancements in language instruction.

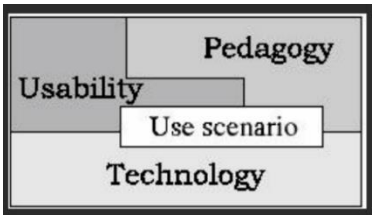

Fig. 1. The elements of TUP Framework by Bednarik, 2002

This study employs the TUP framework to comprehensively assess the Flipbook-EVI Module from several perspectives, incorporating feedback from six ESL teachers in Malaysia. Each dimension—technology, usability, and pedagogy—offers a comprehensive perspective on the module's efficacy in actual classroom environments. The TUP framework facilitates a thorough evaluation of the module's strengths and identifies potential areas for enhancement, especially with its support for vocabulary instruction within the CEFR-aligned curriculum.

In conclusion, the TUP framework provides a comprehensive and systematic method for evaluating the usability of the Flipbook-EVI Module. This study seeks to offer ideas for enhancing digital tools in language learning, emphasizing accessibility, efficacy, and alignment with pedagogical objectives. This method guarantees that both instructors and students gain from technical progress in vocabulary teaching.

E. Purpose Statement and Research Questions

Through a comprehensive examination of the existing literature, it was found that a significant amount of research has been conducted on vocabulary instruction in public primary schools. While numerous studies have

explored multimedia learning, there is limited research specifically investigating the use of Flipbook-based modules in English language learning and teaching, particularly in vocabulary instruction. Furthermore, no studies have been conducted to assess the usability of a Flipbook-based Explicit Vocabulary Instructional (EVI) Module using the TUP model, particularly regarding the perception of teachers in public primary school settings. Hence, this study aims to assess the practicality of the Flipbook-based EVI Module by examining its technological, usability, and pedagogical aspects. This will be done by gathering feedback from teachers who are participating in the evaluation phase of the current study. The study is guided by the following research question:

RQ 1 How do teachers perceive the technological, usability, and pedagogical effectiveness of a Flipbook-based Explicit Vocabulary Instructional (EVI) Module in enhancing vocabulary instruction in public primary schools, particularly within both classroom and distance learning contexts?

III. Research Methodology

This study is a component of a broader DDR study that specifically examined the third stage, known as the evaluation stage. The study is on developing a Flipbook-based module for teaching vocabulary in public primary schools. In this last phase, which constitutes the evaluation phase of the Flipbook-based module for vocabulary instruction, this study employed a qualitative methodology, specifically semi-structured interviews, to elicit detailed descriptions of the participants' perspectives. The aim was to evaluate the usefulness of the Flipbook-based module in enhancing teachers' vocabulary teaching in public primary schools.

A. Participants

The study involved six English as a Second Language (ESL) teachers, each from a different public primary school in one of the districts in Kedah, a state located in the Northern region of Malaysia (see Table 1). In Malaysia, the typical age range of students in public primary schools is from 7 to 12 years old. This covers students from standard 1 to standard 6. Subsequently, the district was selected due to its moderate frequency of technology utilization, as determined by the data gathered from the Kedah State Education Department. The participants were selected via purposive sampling, as described by [33]. This method involves selecting ESL teachers who meet specific criteria, such as having more than eight years of teaching experience, a background in ELT during their undergraduate studies and currently teaching in public primary schools. The only differences between them were their age, gender, and origin.

B. Semi-structured Interviews

Before conducting the semi-structured interviews, expert comments were sought to refine the interview protocol and ensure that the terms used were clear, comprehensible, and appropriate for the intended purpose. The interview form consisted of four demographic questions, namely gender, age, education, and work experience, as well as nine semi-structured questions.

C. Data Collection Procedures and Data Analysis

A total of six participants from the three primary schools participated in a 30-minute, semi-structured interview to gather data from the research participants. To preserve anonymity, pseudonyms were assigned to the participants. The interviews were analyzed thematically using the [34] six-stage approach to thematic analysis. The processes involved in this procedure are as follows: interview data familiarization, code generation based on the interview transcript, combining the codes into themes, review of themes, identification of relevant themes, and reporting of findings. To ensure the credibility of the interview data, we conducted member-checking and expert evaluation of the themes that arose from the data. Member validation was conducted by providing participants with the codes and themes that were developed, to verify if they accurately represented the participants' intended messages. The expert evaluation involved verifying themes, codes, and quotations interpreted by the researchers to ensure their alignment with each other [35].

IV. Findings

Table 1 presents the demographic profile of the participants, indicating an equal distribution of participants in terms of gender. All teachers possess a minimum of eight years of expertise in the field of English instruction.

A. Participants' profile

Table I. Participants' profile

Research participants	Age	Education background	Graduated from	Position	Experience in English Education
Mr. Shaun [TP 1]	40	Master in English education	Universiti Sains Malaysia (USM)	English teacher	14 years
Teacher Anastasia [TP 2]	34	Bachelor's Degree (Honors) in English education	Queensland University of Technology in Australia	English teacher	10 years
Mr. Justin [TP 3]	33	Bachelor's Degree (Honors) in English education	Institut Perguruan Darul Aman (IPDA)	English teacher	8 years
Teacher Sephia [TP 4]	52	Bachelor's Degree (Honors) in English education	Institut Perguruan Guru Tunku Bainon	English teacher & CEFR Master trainer	26 years
Mr. Zack [TP 5]	39	Bachelor's Degree (Honors) in English education	Institut Perguruan Bahasa Antarabangsa (IPBA)	English teacher	11 years
Teacher Elsa [TP 6]	54	Master in English education	Universiti Utara Malaysia, Kedah	English teacher & CEFR Master trainer	28 Years

B. Themes

Three primary themes emerged from the interview data. The themes are summarised in Table 2.

Table 2. Themes and Subthemes from the Interviews

Themes	Codes	Subcodes
Theme 1: Technological Aspects	Strengths	• Integration of multimedia elements • Flexible accessibility
	Weaknesses	• Unreliable internet connectivity • Limited device availability
	Suggestions for improvement	• Cross-Platform Compatibility • Responsive Design
Theme 2: Usability aspects	Strengths	• Align the Flipbook-EVI module with the CEFR • Consistent Design
	Weaknesses	• Difficult to sustain student engagement over time
	Suggestions for improvement	• Further customization of the module by incorporating more adaptive learning strategies
Theme 3: Pedagogical aspects	Strengths	• Supplement traditional instruction • Provide a self-paced learning experience
	Weaknesses	• The need for teacher guidance and support
	Suggestions for improvement	• A blended learning approach that combines the Flipbook-EVI module with face-to-face instruction

The findings sprouted three main themes: First, the strengths, weaknesses and suggestions for improvements from technological aspects (T). Second, the strengths, weaknesses, and suggestions for improvements from usability aspects (U). Lastly, the strengths, weaknesses, and suggestions for improvements from pedagogical aspects (P).

Figure 2 represents the strengths, weaknesses, and suggestions for improvements from technological aspects (P).

- *Theme 1: Technological aspects*

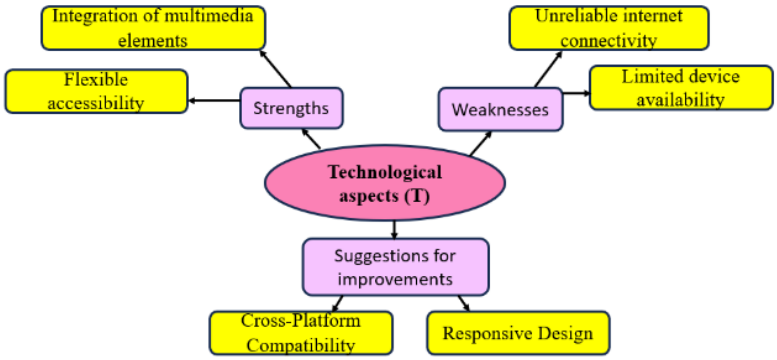

Fig. 2: The strengths, weaknesses, and suggestions for improvements from technological aspects (T).

The first theme that emerged is the usability of the Flipbook-EVI Module from pedagogical aspects. Figure 2 delineates three critical technological facets of the Flipbook-EVI module: strengths, weaknesses, and suggestions for improvements. The recognized strengths encompass the integration of multimedia elements and flexible accessibility, which improve the user experience and accommodate various learning preferences. The participants highlighted this through various elements integrated into the Flipbook-EVI Module such as the interesting and meaningful audio, pictures and videos attached. They also claimed that the availability of the module online and offline is very satisfying in their context. The extracts are presented as follows:

"The elements in the Flipbook-based module such as audios, videos, and pictures asserted are interesting, engaging, informative and…also simulating. It makes me want to keep flipping the module". [Mr. Shaun]

"I believe that my students will enjoy this. You know…the young generation and technology. It is their passion. They love colorful pictures, and audio especially videos. I just know that they will definitely love and enjoy the lessons in the Flipbook-based module as compared to the physical module". [Teacher Sephia]

"The availability of the module online and offline makes it so beneficial. As you know, the internet connection is so lousy, therefore, downloadable materials or modules will benefit well," [Teacher Anastasia]

"We have quite several modules developed in the district. However, the module does not focus on explicit vocabulary instruction and also lacks flexible accessibility. Online module alone is actually difficult here due to internet issues" [Mr. Justin]

"There are quite several modules shared by teachers around Malaysia. However, most of them are available online and need a stable internet connection. Therefore, the idea that this module is usable online and offline is great". [Mr. Zack]

These extracts indicate that teachers welcome the integration of interesting and meaningful audio, videos, and pictures through the use of Flipbook as it breaks the conventional routine of learning. The elements integrated are suitable to their students' preferences. These extracts indirectly elucidate that teachers see the module as a bonus due to its flexible accessibility. This is supported by Figure 3 which shows the interactive multimedia elements found in the EVI-Flipbook Module.

Fig. 3: The interactive multimedia elements in the EVI-Flipbook Module

Nevertheless, end users identified problems such as inconsistent internet connectivity and restricted device availability. Participants reached a consensus on the weaknesses of the Flipbook-EVI Module in terms of technological aspects. When asked about the challenges they face concerning technological aspects, their responses highlighted significant needs:

"As you know our area has always been dealing with internet connection issues… [Mr. Zack]

"I think the students will resort to their parents' mobile phones and students' laptops provided to them a while ago. But, only a few students got the laptop. I think those are the only medium that they can and will use". [Mr. Shaun]

These extracts indicate that the teacher participants expressed concerns over the challenges of teaching involving technology. To mitigate these issues, the module should be developed with cross-platform compatibility and responsive design, guaranteeing its functionality across diverse devices and enhancing accessibility in various technological contexts.

"I love the ideas where it is really good if the module could be used with any device, online and offline", [Teacher Elsa].

"Please do not limit the compatibility of the module to the handphone only. If it can be used with [a] desktop, tablet or personal computer also, I think that will be very good for the students. Because they have limited sources". [Teacher Sephia]

These excerpts underscore the crucial importance of creating a cross-platform compatibility module. This will act as a crucial facilitator for guaranteeing the accessibility and functionality of the Flipbook-EVI Module across many devices and operating systems, thus expanding its reach and usability. Cross-platform compatibility enables educators and learners to access the module on many technical devices, including laptops, tablets, and smartphones, irrespective of their operating systems, whether iOS, Android, or Windows. This is especially significant in educational environments with varied technology infrastructures, because not all users may possess identical gadgets. Optimizing the module for seamless functionality across many platforms reduces the danger of technological barriers that could impede its utilization, particularly in under-resourced or rural schools with restricted access to modern technology.

- *Theme 2: Usability aspects*

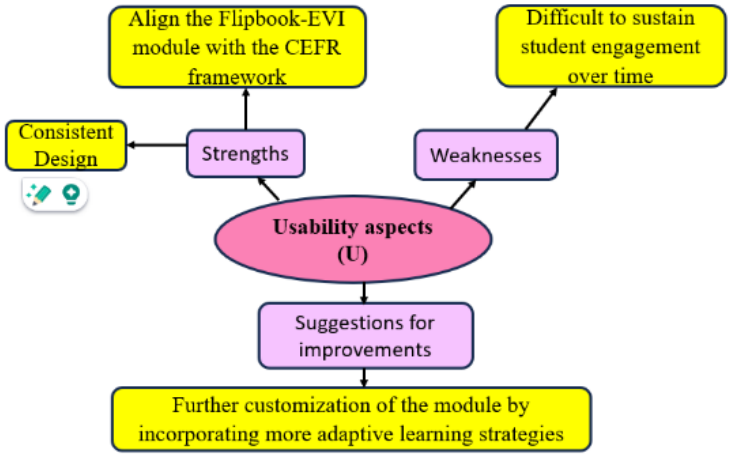

Fig. 4: The strengths, weaknesses and suggestions for improvements from usability aspects (U).

The second theme uncovers the usability aspects of the Flipbook-EVI Module. Figure 4 identifies three key aspects related to the usability of the Flipbook-EVI module: strengths, weaknesses, and suggestions for improvement. The strengths include its alignment with the CEFR framework and a consistent design, both of which contribute to the module's usability while supporting the implementation of the CEFR within the Malaysian curriculum. The extracts are presented as follows:

"emm.. I think that one of the strengths of this module is that it entails the existing curriculum where the topics and syllabus aligned with the textbook" [Mr. Zack]

"Since most of our issues recently is dealing with the newly integrated curriculum, CEFR, I think this module is really helpful as it aligns with CEFR curriculum". [Mr. Justin]

"The design and the format of the module is simple to understand. Module A has its format. The same goes with modules B and C. So, it is easy to comprehend the module"[Mr. Justin]

"Even though the module involves technology, it is not complicated. We can just click on the move forward and move backward easily and comfortably in the module. The design is simple and is easy for both teachers and students to navigate". [Teacher Anastasia]

Teachers praised the techniques and exercises in the Flipbook-EVI module for aligning well with the new CEFR curriculum, making it easier to meet vocabulary teaching goals. They also found a consistent design across Modules A, B, and C were user-friendly, which helped them feel comfortable and confident using the module. This consistency reduced the need to learn new layouts for each module, allowing teachers to focus on teaching. Overall, these positive reactions show that the module effectively supports both curriculum requirements and ease of use in distance learning. Figure 5 further supports the participants' statement on the alignment of the EVI Module with the CEFR curriculum.

Fig. 5: The alignment of the EVI Module with the CEFR curriculum.

Despite these advantages, a key weakness identified by end users is the difficulty in sustaining student engagement over time. The responses of the participants that imply these are:

"I agree that this module is interesting and informative to the teachers and the students. However, I also cannot deny that it is quite difficult to sustain students' engagement and interest to keep attempting the module as compared to the use of games in the classroom" [Mr. Justin]

"It is interesting. With the sounds..pictures, and videos. It is colorful as well. However, going forward and backward flipping the module could reduce students' engagement. I am afraid they will get bored after a while" [Teacher Anastasia]

These extracts indirectly elucidate teachers' concern about their challenges in sustaining students' engagement while utilizing the module. Figure 6 illustrates the forward and backward cursors in the module.

Fig. 6: The forward and backward cursors in the module

To address this challenge, it is recommended that the module be further customized to incorporate adaptive learning strategies. These strategies could include gamification, personalized feedback, and varied instructional approaches, all of which may enhance engagement and support diverse learner needs. Their comments are as follows:

"Adding some interactive elements would be very beneficial in this Flipbook-EVI Module" [Teacher Anastasia]

"This module undeniably is very informative. However, I think students nowadays are exposed enough to different games and quizzes. Therefore Flipbook-EVI Module can be further enhanced by including games, instant feedback etc". [Mr. Shaun].

These findings indicate the teachers' suggestions to further improve the Flipbook-EVI Module by further customizing it by incorporating more adaptive learning strategies such as gamification, personalized feedback, or varied instructional approaches.

- *Theme 3: Pedagogical aspects*

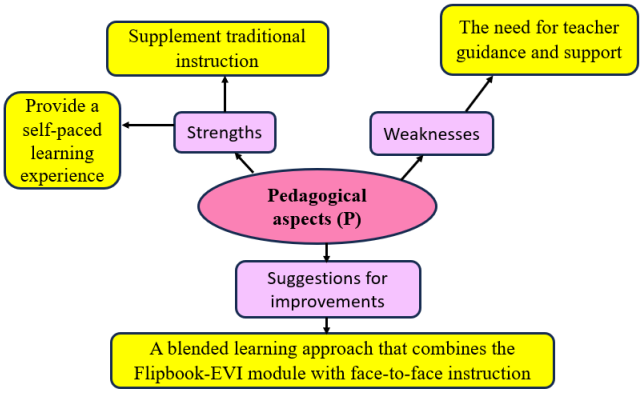

Fig. 7: The strengths, weaknesses, and suggestions for improvements from pedagogical aspects (P).

The third theme that emerged is the usability of the Flipbook-EVI Module from pedagogical aspects. Figure 7 highlights three key pedagogical aspects of the Flipbook-EVI module: strengths, weaknesses, and suggestions for improvement. The identified strengths include its ability to supplement traditional instruction and provide a self-paced learning experience, both of which enhance the module's flexibility and adaptability for different learning environments. The participants provided reasons for this, and their comments are reflected as follows:

"What I love about this module is it supplements what is lacking in the current curriculum. It helps me in various explicit techniques and it also helps me have a classroom that is out of conventional way". [Teacher Sephia]

"This module is good because it allows a self-paced learning experience amongst students. They can explore and learn". [Teacher Anastasia]

Figure 8 and Figure 9 further illustrate several samples of exercises that supplement traditional activities and some self-paced learning opportunities in the teaching and learning English vocabulary using the Flipbook-EVI Module.

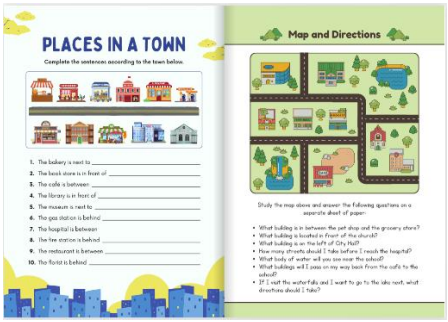

Fig. 8: Examples of exercises that supplement traditional activities in the teaching and learning English vocabulary

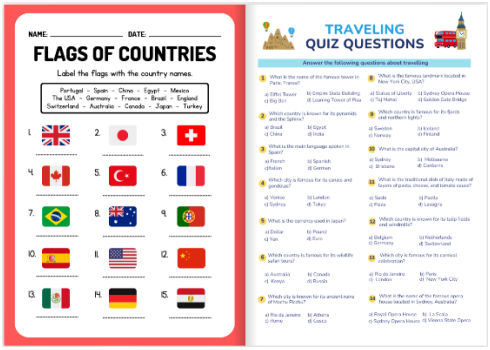

Fig. 9: Self-paced learning opportunities in the module

However, a notable weakness observed by end users is the need for teacher guidance and support to maximize the module's effectiveness. Teacher Sephia and Teacher Elsa indicated that…

"I don't think the distribution of this module to the teachers and students alone is a good idea. Teachers nowadays are busy with lots of classes and clerical work. So, briefing or short courses on the content and how to best use the Flipbook-EVI module will be a very good idea." [Teacher Sephia]

"I need some time to comprehend the module. Maybe if there is some PLC on this, or some guidance and support, it will be easier" [Teacher Elsa]

These extracts indicate that teachers are experiencing issues with receiving the module alone without guidance and support. They imply that they are tied to many other commitments concerning teaching and other clerical work. Figure 10 shows the submodule that is believed to be well-used with little support and guidance.

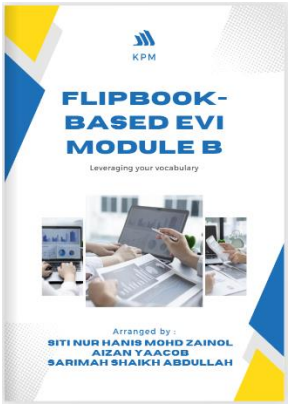

Fig. 10: The submodule that is believed to be well-used with little support and guidance

To address this issue, it is recommended that the module be implemented using a blended learning approach that combines the Flipbook-EVI module with face-to-face instruction. This approach would allow for more comprehensive teacher-student interaction, ensuring learners receive the necessary support and guidance while benefiting from the module's self-paced features. The teachers reflected that:

"I think the use of this Flipbook module can be further improved if we are given guidance or support such as PLC in carrying out or implementing each technique introduced in the module" [Mr. Shaun]

"Utilizing the module can be pushed to its maximum level by implementing a blended learning approach where we combine the use of Flipbook module with face-to-face instruction'' [Mr. Zack]

"Since we are moving forward towards the use of technology in the classroom and the students nowadays are also synonyms to the technology. I think it is a good idea to blend the instruction. Maybe we can use the Flipbook module in the classroom as well" [Teacher Sephia]

In short, these findings indicate that a blended learning approach combining the Flipbook-EVI module with face-to-face instruction could significantly enhance the module's effectiveness. Teachers recognized the importance of supplementing the module's self-paced learning features with direct guidance and support, such as through Professional Learning Communities (PLC), to better implement the techniques introduced. The reflections suggest that integrating the module with in-person teaching would allow for richer teacher-student interaction, ensuring students receive the necessary help while benefiting from the technology-enhanced learning experience. This blended approach also aligns with the growing integration of technology in classrooms, as highlighted by the teachers' recognition of the increasing familiarity students have with digital tools, making it a practical and forward-thinking solution for vocabulary instruction.

V. Discussions

A. Discussion of Main Themes and Subthemes

The findings from the evaluation of the usability of the Flipbook-EVI module in distance learning for vocabulary instruction reveal significant insights into its technological, usability, and pedagogical dimensions. These insights provide valuable implications for further development and optimization of the module, particularly in addressing the unique challenges faced in rural and underserved contexts in the Malaysian Educational system.

From the *technological aspect*, the appealing and engaging nature of the Flipbook format is a notable strength, as it successfully captures students' attention and sustains their motivation, which is critical for vocabulary learning [36]. This aligns with the increasing demand for digital learning tools that enhance engagement through multimedia and interactive features. However, the study also highlighted critical challenges related to technology accessibility. Students in underserved and rural areas, where internet connectivity may be unreliable and device availability is limited, face significant barriers to fully benefiting from the Flipbook-EVI module [27]. This echoes broader

concerns in distance learning about the digital divide, where students from resource-constrained environments are at a disadvantage [10]. Therefore, to improve its accessibility, it is recommended that flexible accessibility and mobile-friendly versions of the module be developed [37]. By doing so, the module could reach a broader audience, ensuring that learners in under-resourced settings are not left behind. these findings align with previous research indicating that accessible e-learning systems must be designed with the diverse needs of learners in mind. [38]. Even though some researchers like [39] have argued that accessibility criteria do not fully capture the needs of all users, the recommendations here could serve as a starting point for enhancing the usability and reach of online educational resources.

In terms of *usability*, the Flipbook-EVI module's alignment with the CEFR framework is a significant strength, as it provides a structured and progressive approach to vocabulary instruction. This systematic approach helps teachers and students follow a clear path to language proficiency, supporting vocabulary retention and acquisition [40]. However, in the context of the Flipbook-based Explicit Vocabulary Instruction (EVI) Module, one notable usability weakness is the challenge of sustaining student engagement over extended periods of use. While the Flipbook format can initially capture students' attention with its interactive and multimedia features, sustaining engagement over time, especially with primary school learners, may present challenges. This is consistent with studies by [41], which suggest that interactive multimedia elements can enhance initial motivation and engagement by making learning more visually appealing and dynamic. However, they also emphasize that without consistent novelty or varying cognitive stimulation, students' attention can wane as they become accustomed to the format, leading to diminished engagement over time. This indicates that while the Flipbook-EVI module may be highly effective in the short term, continuous innovation in the instructional design is necessary to sustain student interest.

From a usability perspective, the repetitive nature of the module's activities and the digital platform itself may lead to a gradual decrease in student motivation and interest. According to findings in instructional design literature, learners often require varied stimuli and interaction modes to sustain engagement, particularly in a technology-enhanced learning environment [42]. The Flipbook-EVI module, though designed to be visually stimulating and interactive, may not offer sufficient diversity in its tasks and interactions to meet the evolving needs of learners over time.

Moreover, prolonged use of digital platforms for vocabulary instruction, especially without adequate support from teachers, can result in cognitive overload, as suggested by the Cognitive Theory of Multimedia Learning [43]. When learners are presented with the same instructional format repeatedly, their intrinsic motivation can diminish, potentially leading to disengagement from the learning process [44]. This indicates that while the Flipbook format holds initial appeal, the lack of dynamic elements or adaptive features to address varying levels of learner interest and challenge may hinder its long-term usability.

On the other hand, some studies present findings that do not entirely align with this view. For example, [11] found that multimedia-based instructional tools can maintain long-term engagement if combined with adaptive learning strategies, such as personalized content or gamified elements that evolve with the learner's progress. This suggests that the Flipbook-EVI module's engagement potential could be improved by incorporating adaptive features, making the learning experience more dynamic and tailored to individual student needs. Additionally, [45] argue that cognitive load theory suggests that well-designed multimedia can hold learners' attention if the content is structured progressively to prevent cognitive overload, thus supporting sustained engagement.

Therefore, to address this issue, the participants suggested further customization of the module by incorporating more adaptive learning strategies, such as gamification, personalized feedback, or varied instructional approaches, which could enhance the module's effectiveness in sustaining student engagement over time.

From a *pedagogical perspective*, the Flipbook-EVI module offers notable advantages by promoting autonomous learning and fostering student engagement, especially in distance learning settings [8], [46]. The module's design encourages self-paced learning, which is crucial for students who may not have continuous access to a teacher, particularly in remote learning environments. This aligns with the growing emphasis on learner autonomy in educational technology. However, participants also noted that despite these benefits, teacher support remains essential for effectively integrating the Flipbook-EVI module into the teaching and learning process. This suggests that while the module can serve as a supplementary tool, it may be most effective when used in conjunction with traditional, face-to-face instruction. A blended learning model, combining the flexibility of the Flipbook-EVI module with the structured guidance of in-class instruction, could address this need and optimize the module's effectiveness in vocabulary instruction [10]. Existing research has shown that blended learning approaches can leverage the strengths of both digital and face-to-face learning [47]. Even though some studies have cautioned about

the complexity of implementing blended learning, the potential benefits for vocabulary acquisition warrant further exploration.

By integrating the module with classroom activities, instructors can support students' independent learning while also providing timely feedback and assistance [48], [49], [50]. This blended approach could address concerns about maintaining student engagement over time and ensure that learners receive the necessary scaffolding and guidance [50].

Ultimately, the Flipbook-EVI module's implementation findings highlight the need for a holistic, user-centered design approach that considers learners' diverse needs and contexts. By continuing to refine and adapt the module based on user feedback and research, it can potentially become a more effective and accessible tool for vocabulary instruction in primary education [51], [52].

The findings emphasize the potential of the Flipbook-EVI module as an effective tool for vocabulary instruction in distance learning. However, technological improvements, such as flexible accessibility, usability enhancements through personalized learning features, and the integration of teacher support within a blended learning approach, are necessary to ensure its success, particularly in underserved contexts. These insights offer a roadmap for further refining the module to better meet the needs of diverse learners while maintaining its alignment with pedagogical best practices and the CEFR framework.

VI. Limitations And Recommendations

The study on the Flipbook-EVI (Flipbook-based Explicit Vocabulary Instructional) Module presents several limitations that impact its broader applicability and effectiveness. First, generalizability is a concern, as the module is designed specifically for the Year 5 CEFR curriculum in Malaysian primary schools, making it less applicable to other educational systems, curricula, or age groups outside of this context. Second, technological accessibility poses a potential challenge, particularly in rural or under-resourced schools where access to devices or stable internet connections may be limited, thus hindering the module's usability for some teachers and students. Third, the study's success may also depend on user training; many teachers, especially non-option English teachers, may not have the necessary digital literacy to use the module effectively without sufficient training and ongoing support. Finally, sample size and scope could limit the study's findings, as the experiences of a small, regionally specific sample may not fully capture the diverse range of challenges or successes that might emerge with a larger, more varied group of users, affecting the overall robustness and transferability of the conclusions drawn. These factors could limit the overall impact and scalability of the module beyond its initial target context.

To address these limitations, several recommendations were made to enhance the usability and effectiveness of the Flipbook-EVI Module for a broader audience. First, expanding the target population by adapting the module for use in different educational contexts, such as varying grade levels, the CEFR-aligned curricula, or even internationally, would improve its generalizability. Second, offering comprehensive user training is essential. This could involve developing a robust support system, including professional development workshops and continuous technical assistance, particularly for non-option English teachers or those less experienced with technology. Additionally, creating a mentorship program where more tech-savvy teachers could assist their colleagues further enhances adoption. Finally, conducting a larger-scale study with a more diverse sample of participants would provide richer insights and more generalizable findings, ensuring that the module is adaptable to a wide range of teaching environments. Implementing these recommendations can improve the scalability and practical applicability of the Flipbook-EVI module across various educational settings.

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