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TIGA-Based English Learning Platform for Language Learner Competency Development in a Digital Environment

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Abstract. This study aimed to develop and implement a digital learning platform (DLP) for English language learners at the junior high school level in Thailand. The study emphasizes the necessity of customizing digital tools to individual needs and behaviors for effective implementation. The successive approximation model (SAM) (Herrholtz, 2020) was used for instructional design, focusing on rapid prototyping and continuous feedback. The DLP was meticulously designed to align with the Basic Education Core Curriculum 2008, the Common European Framework of Reference for Languages (CEFR), and reading literacy under the Programme for International Student Assessment (PISA). The architecture of the platform prioritized open standards and web services to ensure seamless integration and data exchange, although integration challenges were noted. Content and activities were acquired from the TIGA English teaching model, fostering various language skills through tasks (T), language input (I), genre (G), and authentic assessments (A). The TIGA-based DLP was implemented in 8 schools involving 7 teachers and 212 students. Questionnaires and group discussions were used to obtain participant feedback. The questionnaire data were analyzed quantitatively using means and standard deviations. The discussion data were analyzed qualitatively to identify themes. Positive feedback and challenges were revealed. Identified limitations include the need for additional learning activities, clearer teacher guidelines, and enhancements to the graphical user interface (GUI). These findings highlight the potential of the DLP to enrich English language learning and guide future enhancements in digital learning environments.

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1. Introduction

Education in Thailand has fueled a growing emphasis on integrating technology-enhanced language learning (TELL) into English language instruction (Office of the Basic Education Commission, 2014). The goal is clear – to enhance the quality of English language education and boost students' language proficiency in the digitally disrupted era. Thailand's Ministry of Education (MOE) hopes to inspire teachers and students on all levels to use technology in teaching and learning. In response to this challenge, some educators have resorted to leveraging existing digital applications, such as Kahoot! or Quizizz, as supplementary tools in their English language teaching efforts. These applications inject excitement and motivation into the learning process (cf. Aramruangsakul, 2018; Penhataikul, 2022; Phenpran & Nahnjun, 2015; Sripanya, 2018). Nevertheless, the use of these readily available applications comes with inherent limitations. They may not always align with an English course's specific learning outcomes, nor are they necessarily tied to the content covered in students' textbooks. While these applications can contribute to in-class English language learning, they may fail to foster continuous language acquisition beyond the classroom environment.

To help ensure that Thai students perform well academically, the MOE endeavors to develop a digital learning platform (DLP) for public and private schools for primary and secondary school students to undertake online learning. DLPs have become essential tools for English language teachers and learners, especially in the new normal era after the emergence of the COVID-19 pandemic (Pichugin et al., 2022). These platforms offer a variety of resources, such as interactive lessons, practice exercises, grammar explanations, vocabulary-building activities, and live-speaking practice with native speakers (Kranthi, 2017). The platforms also cater to different learning styles and levels, providing personalized learning experiences for users. Additionally, many platforms offer mobile apps for convenient on-the-go learning. DLPs support different learning activities and develop common language competencies (Juárez-Díaz & Perales, 2021).

The current research recognizes the need for a more holistic approach to English language education that enables Thai students to immerse themselves in English anywhere and at any time. In this light, we suggest an intriguing advancement – the creation of a customized English DLP designed specifically for junior high school students in Thailand – and to examine the potential effectiveness of this platform. The primary aim of this DLP is to facilitate active and meaningful language learning through an innovative teaching model and a technology-integrated approach. By explicitly tailoring to the expected English learning outcomes of Thai junior high school students and merging engaging interactive dynamics with language learning, this DLP seeks to revolutionize the way English is learned and mastered by Thai students. This initiative holds the potential to significantly contribute to the field of educational technology and task-based and genre-based approaches within the Thai education context. It represents a pivotal

step toward harnessing technology as a powerful tool for English language instruction, ultimately equipping students with the skills they need to excel in today's globalized world.

2. Literature Review

2.1 Technology-Enhanced Language Learning

TELL involves utilizing computers and multimedia tools to supplement traditional language teaching methods (Park, 2022; Zainuddin, 2023). In other words, TELL is not a standalone teaching method but rather an adjunct approach that can enhance and support existing instructional practices. It focuses on how technology influences the teaching and learning processes of a second or foreign language.

Various research studies have emphasized the advantages of TELL (cf. Akman Yeşilel, 2016; Carr et al., 2011; Patel, 2014; Tafazoli & Chirimbu, 2013), leading to considerable attention in the field. TELL enables individuals to seamlessly connect various sources of knowledge and educational materials (Yang & Chen, 2007). Learners at all ages can enjoy unrestricted access to cutting-edge technologies that continually enhance their communication and learning capabilities. Therefore, incorporating technology relevant to their daily lives is likely to help them learn effectively. This may also enhance the development of key language and digital competencies. Being competent means more than just having knowledge and abilities; it involves using personal strengths, including talents and attitudes, to meet challenging demands in different situations (Kipper et al., 2021; Sumter et al., 2021). An example of such competency is effective communication, which draws upon linguistic proficiency, practical communication experiences, and understanding of conversational partners (Tseng, 2019). Technology has been suggested to significantly influence language acquisition across various domains, such as phonetics, grammar, vocabulary, reading, writing, translation, auditory comprehension, literature appreciation, and assessment (Ghanizadeh et al., 2015; Tseng, 2019; Yang & Chen, 2007).

2.2 Digital Learning Platform and English Language Learning

A DLP is one effective avenue for enhancing language learning. It connects real learning resources with the digital world for teaching and learning (Ahmadi, 2018). By converting as many physical learning resources into digital formats as possible, the DLP offers an innovative combination of different learning concepts and structures. It can also ensure that different groups of learners have equal access to learning resources through interaction, communication, and knowledge sharing (Faustmann et al., 2019).

DLPs have transformed English language learning with their numerous advantages, although there are also some notable drawbacks. These platforms offer unmatched accessibility and flexibility, enabling learners to access materials anytime and anywhere and to progress at their own pace (Hazaymeh, 2021). They feature diverse resources such as videos, interactive exercises, quizzes, and reading materials, with multimedia integration enhancing comprehension and retention (Hu et al., 2021). Personalized learning experiences are supported

through adaptive technologies and immediate feedback (Shadiev & Yang, 2020). Gamification and interactive activities boost engagement and motivation, while cost-effectiveness and global networking opportunities are notable benefits (Muntrikaeo & Poonpon, 2022).

However, there are downsides to consider (cf. Faustmann et al., 2019; Hazaymeh, 2021; Shadiev & Yang, 2020). Digital platforms may lack the personal touch and immediate feedback of face-to-face interactions, potentially reducing social learning opportunities. Technical issues such as Internet reliability and online distractions can pose barriers, requiring learners to stay disciplined and motivated. Quality and credibility can vary, raising concerns about fraudulent or poorly designed courses. Assessment challenges, including cheating and assessing practical language skills, also exist. Moreover, self-study can sometimes leave learners feeling isolated and struggling with complex topics. Balancing digital resources with other learning methods can help address these challenges and ensure a more comprehensive language learning experience.

2.3 Task-Input-Genre-Assessment (TIGA) Model for English Language Teaching

The TIGA model was developed with the objective of solving the problem of teaching English to teachers and students in rural Thailand (Poonpon et al., 2016). The design of the TIGA model was underpinned by Thailand's 2008 Basic Education Core Curriculum, the Common European Framework of Reference for Languages (CEFR), and the Communicative Language Teaching (CLT) approach. Later, in 2022, the model was adjusted to align with the international standard student competency assessment program (i.e., Programme for International Student Assessment: PISA), which emphasizes reading literacy (Poonpon et al., 2022).

The TIGA teaching model (Figure 1) integrates the following elements (Poonpon et al., 2022, p. 1738):

1. Task (T): This refers to the main task (target task) that the learners can perform in both local and global contexts. It has scaffolding sub-tasks so learners can complete the main task, which aims to get them to use English using different types of text (genre).
2. Language input (I): Learners receive language input focusing on necessary vocabulary, grammar, as well as listening and reading skills.
3. Genre (G): Learners analyze and learn the communication purposes and schematic structures of different types of text models (genres) assigned as the main tasks of the lesson.
4. Authentic assessment (A): Learners are encouraged to self-assess their competency in performing various tasks realistically

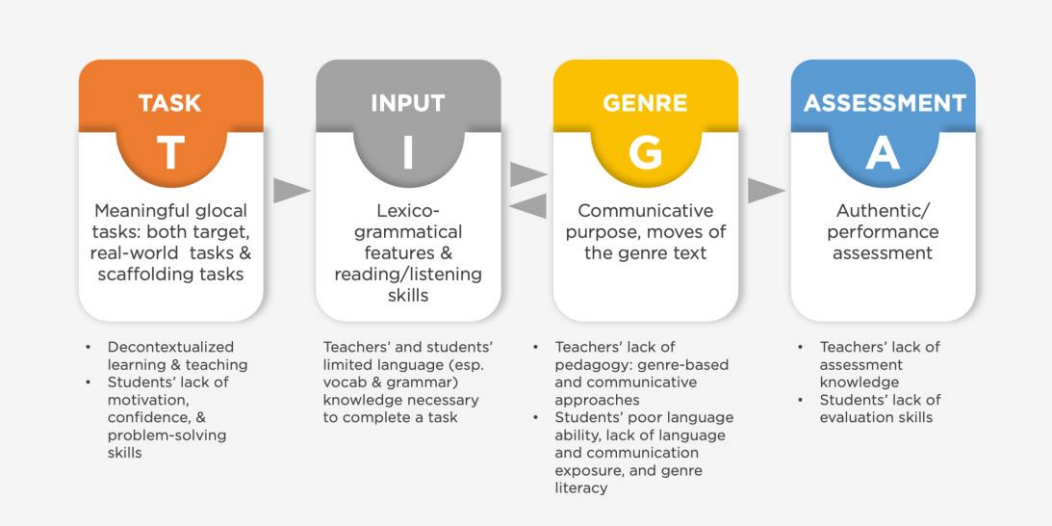

Figure 1: TIGA English teaching model (Poonpon et al., 2022)

3. Research Conceptual Framework

The concept of developing the TIGA DLP is a further development of English language teaching innovations using the TIGA model (Poonpon et al., 2022). Figure 2 shows a research conceptual framework to develop a smart English learning platform for developing student competencies in the digital environment. Adding to the TIGA model developed on the basis of Thailand's Basic Core Curriculum 2008, the CEFR policy, and the PISA concept, the TIGA DLP highlights the digital learning environment as one of the major aspects of English language learning.

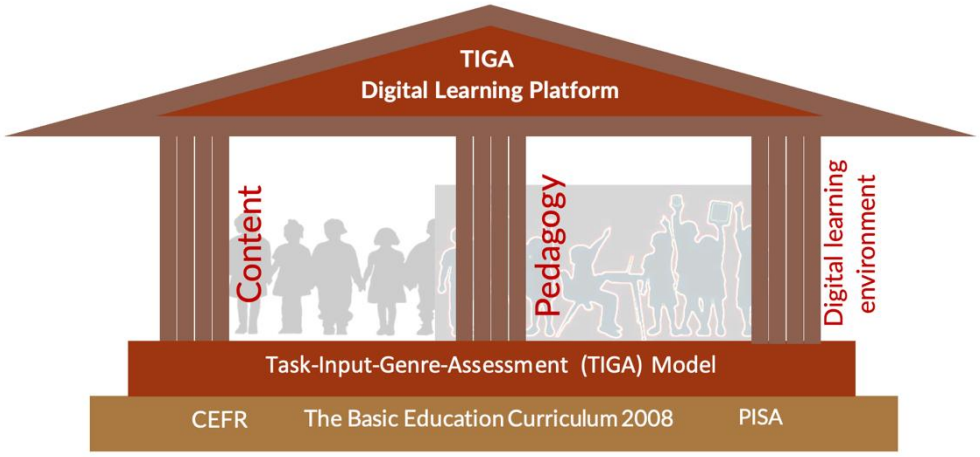

Figure 2: TIGA digital learning platform framework

4. Methodology

4.1 Instructional Design of the TIGA Digital Learning Platform

The successive approximation model (SAM) (Herrholtz, 2020) was used to develop a smart learning platform using the TIGA model (Figure 3). Table 1 illustrates how we used this model to design, develop, implement, and evaluate the TIGA DLP in each phase. The results from the iterative design and development phases are highlighted in this paper.

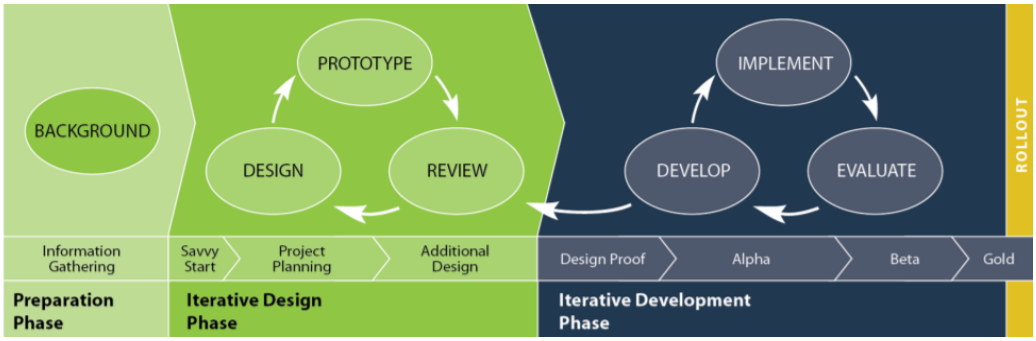

Figure 3: Successive approximation model (SAM) (Herrholtz, 2020)

Table 1: Research and development phases based on the SAM framework

Research and development phases	Process	Steps taken
Preparation phase	Preliminary study to analyze and design the platform.	1. Information from the use of the original TIGA innovation set (i.e., Smart English books) was studied. This printed book format integrated various applications, such as Kahoot! and Educaplay, for learning relevant content. 2. Specifications to develop a digital learning platform were formulated. The TIGA model conceptual framework guided the design and development of DLP prototypes. 3. The content to be used in the DLP was based on the topic of each chapter in the printed books, with similar vocabulary and content.
	Determining learning outcomes	Learning outcomes consistent with those specified in the Smart English books were determined by integrating indicators from the Core Curriculum, CEFR learning standards, and PISA framework.
Iterative design phase	Design and development	Data from the previous preparation phase were used to design and develop a DLP prototype program (DLP−Prototype), called ELA–TIGA, using the Moodle learning management system for testing with samples (Poonpon et al., 2021).
	Testing and evaluation	1. Once the DLP–Prototype was designed, it was applied to two schools in Khon Kaen province. Both schools are medium-sized schools located in the province. 2. Data collection was done by interviewing teachers and students on their opinions toward the DLP−prototype.
Iterative development phase	Maintain and develop	Results from interviews with teachers and students from the previous two schools were used to adjust the DLP−prototype.
	Implementation	1. The modified DLP−Prototype was implemented in target group schools in four provinces (two schools

Research and development phases	Process	Steps taken
		in each province), namely Ubon Ratchathani, Nakhon Ratchasima, Udon Thani, and Khon Kaen. 2. Feedback was collected from teachers and students toward the DLP. Both closed-ended and open-ended questionnaires and group discussions were used. 3. The results of the opinion questionnaire and discussions were adjusted: DLP–Prototype to achieve DLP–Completed.

4.2 Designing Content and Activities in the TIGA Digital Learning Platform

The most important factors in any learning platform are always available content, quality, user-friendliness (Faustmann et al., 2019), and easy retrieval of desired information (Panigrahi et al., 2018). Furthermore, digital content and applications must be simple, fast, and seamlessly compatible with any platform, systems, services, and tools.

To start designing content and activities, the English learning outcomes of the developed DLP were first developed from indicators linking the Basic Education Core Curriculum 2008 with CEFR (A2) and aligned with PISA emphasizing reading literacy. Overall, the learning outcomes for the Grade 7 students included the following:

1. Students can understand phrases and sentences that they have heard or read on various media types about matters related to daily life and express their opinions.
2. Students can use English to communicate in both spoken and written form at the level of phrases and sentences to speak about themselves and matters close to them that occur in everyday life.
3. Students can develop analytical thinking, cooperation, and creativity skills to communicate using English.

We created learning content by combining lesson content from *Smart English students' book 1* (Poonpon & Satthamnuwong, 2018) and *Smart English students' book 2* (Poonpon et al., 2018) with interactive multimedia techniques through Moodle activities using H5P (interactive content) capabilities. Eight lessons were designed in the TIGA DLP to help students develop their English proficiency and achieve learning outcomes at the Grade 7 level: *My family*, *My school*, *My dish*, *My free time*, *What's the weather like*, *Taking a tour*, *My favorite festival*, and *My table manners*.

Teachers/managers can use the built-in exercises to create interactive learning content. This will make the learning and collaboration paradigm more efficient. Teacher role-players can create interactive multimedia learning materials that include functions such as image hotspots, image justification, memory games, interactive images, and many more within H5P to suit each learning content because of the success factor of digital teaching and learning technology.

Virtualized and shifted to more flexible computing models, the idea is to connect a large collection of educational resources and apps to the existing educational IT infrastructure (Abel et al., 2013).

4.3 Participants

This TIGA DLP was implemented at eight schools in four provinces in the northeast of Thailand, including Khon Kaen, Nakhonratchasima, Udonthani, and Ubonratchathani. The schools volunteered to participate in this project. In all, 7 teachers and 212 students participated in the implementation stage. The teachers and students were sampled conveniently as they taught and studied Grade 7 at the selected schools, respectively. All participants were informed about the objectives and procedures of the project and signed consent forms before participating in the research.

4.4 Research Instruments

Two instruments were used to collect students' feedback and evaluation of the TIGA DLP: a four-item Likert scale questionnaire with open-ended questions (Appendix 1) and group discussions (Appendix 2) with teachers and students. All instruments were validated by two experts (one from the field of educational technology and the other from information science). The internal consistency of the questionnaire was .92.

4.5 Data Collection and Analysis

Both quantitative and qualitative data were collected to explore the usefulness of the TIGA DLP. The implementation of the TIGA DLP occurred in eight schools. At each school, a four-hour workshop on demonstration and participation in using the TIGA DLP was conducted. The first hour was allocated for an orientation on how to use the DLP. Then, the teachers and students spent three hours exploring and using the DLP to study English. After that, the questionnaire was distributed and small group discussions were carried out.

Descriptive statistics, that is, means and standard deviations, were used to analyze the quantitative data from the questionnaire. The interpretation is as follows (Upara & Chusanachoti, 2023):

Strongly agree	3.25–4.00
Agree	2.50–3.24
Disagree	1.75–2.49
Strongly disagree	1.00–1.74

Content analysis was used to theme interesting feedback from the teachers and students.

5. Results

This section reports on the outcomes of the TIGA DLP design and development and the feedback from the participants after the implementation.

5.1 Digital Learning Platform

5.1.1 Platform structure and composition

The TIGA DLP was created with a new open architecture, leveraging open standards and services such as web services and application programming interface (API) connectivity that are accessible to the education sector (Figure 4).

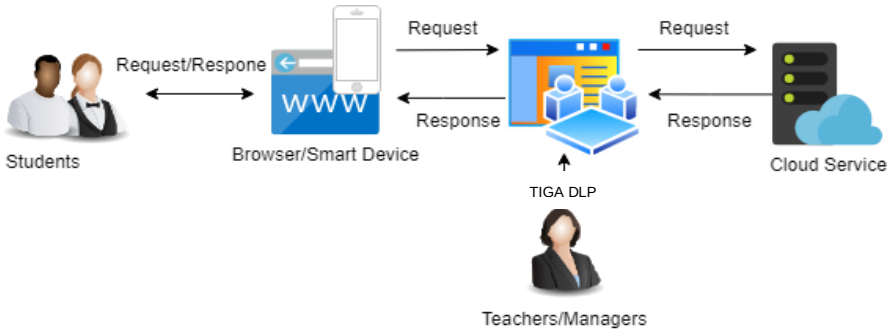

Figure 4: Architectural design of a smart learning platform using the TIGA model (Adapted from Poonpon et al., 2021)

Open IT architectures in education facilitate seamless integration through a collaborative set of services, APIs, and data exchange formats. It was established as an open standard managed by the user community, reducing the time and expenses of developing and supporting applications within the architecture. These standards-based advancements not only support cross-platform integration and plug-and-play functionality with other entities but also promote the sharing of innovative applications across diverse learning communities, emphasizing the need for collaboration (Abel et al., 2013). Utilizing a smart device with a web browser is all that is required for individuals interested in using digital learning platforms, as these platforms are compatible with all servers and operating systems. Within the TIGA DLP, those in the role of teacher/manager will be responsible for creating and managing H5P interactive content collaboration and functions (e.g., image hotspot, image justification, memory games) and other e-learning media files that will be stored on the cloud, including the web server.

However, in designing and developing this DLP, we avoided an unpleasant feature of the system (Faustmann et al., 2019). There must be a knowledge contest or competition function, content introduction, and feedback due to interactions with others, for example, in social networks in general. The absence of this may lead to the educational technology not being characterized as being intended for learning and teaching. This aligns with the three characteristics mentioned in the platform design process above. Learning is seen as a personal activity. Learners may need to be more motivated to use educational technology. When intending to interact with others online, the next least important defining characteristic is the need for community-generated interest in a given topic. Since most students participate in teaching and learning in the classroom, they already meet their fellow students one on one every day. Additional online interactions were not needed in the design and development of the platform this time.

5.1.2 Content and learning activities

The content and learning activities in the DLP were based on the TIGA English learning model, which consists of four steps.

First, the "T" (task) stage appears in the form of an introduction to each lesson. This section introduces the lesson items and explains the objectives of the lesson. The activity creation of the task step in the "introduction" is presented through the use of functions on H5P, including the "Image hotspot" or the "Find the hotspot" (Figure 5).

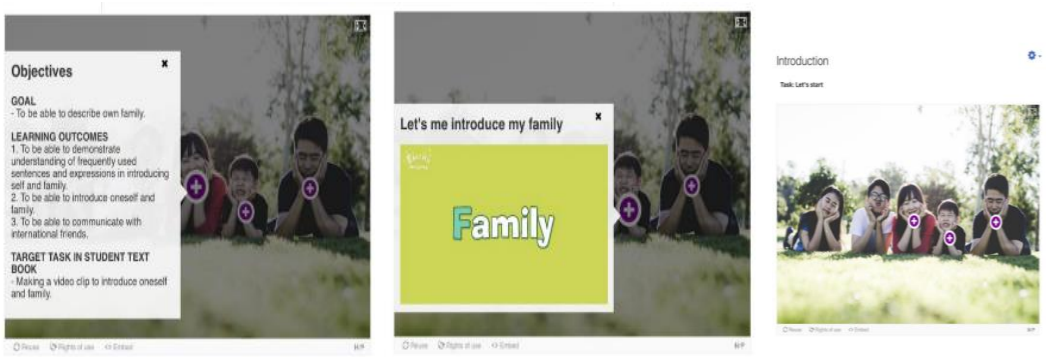

Figure 5: Example of an introduction page in the "T" (task) stage

Second, the language input stage ("I": input) is the stage of activities that helps develop essential English vocabulary and grammar to create a piece for that chapter. The activities in this stage are related to developing English vocabulary and grammar. This includes activities that help develop English skills in all four language areas of listening, speaking, reading, and writing. Creating activities in the input stage is presented with functions on the H5P, such as quiz, find the words, drag-and-drop, memory game, dictation interactive video, and fill in the blanks (Figure 6).

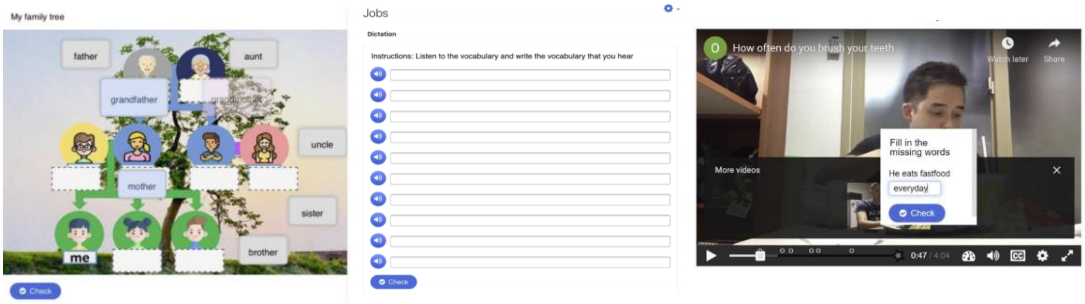

Figure 6: Example of an activity using the drag-and-drop function, dictation, and answering questions through an interactive video in the "I" (input) stage

Third, the semantic stage ("G": genre) is the stage that presents examples of the construction of linguistic knowledge obtained from the input stage in the form of various types of text (genre). The activities in this section included giving an example of the text of that lesson (text model) along with a presentation of moves

that can be used to show communication functions, such as the format and sequence of information in self-introduction format and order of text in writing a letter, etc. Creating activities in the "G" (genre) stage is presented using functions on H5P, including drag-and-drop, dragging the words to fill in the blanks (drag the words), and sorting the paragraphs (sort the paragraphs) (Figure 7).

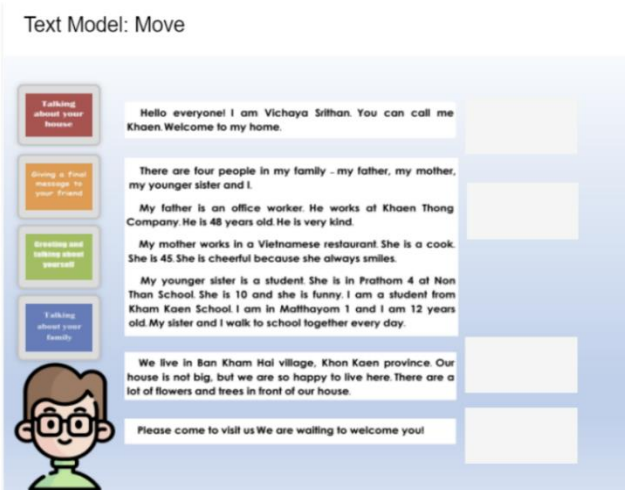

Figure 7: Example of an activity using the drag-and-drop function in the "G" (genre) stage

Fourth, the assessment stage ("A") is the stage of activities used to test learners' knowledge. Through reading activities, the PISA reading literacy test was used to communicate as a text model for each chapter. That is, there were 3 to 5 questions in the question set. The test measures reading skills at three levels: access and retrieve, integrate and interpret, and reflect and evaluate (Figure 8). In addition to the reading test, the activity at the end of each lesson was a self-assessment form for students to assess their understanding of the content.

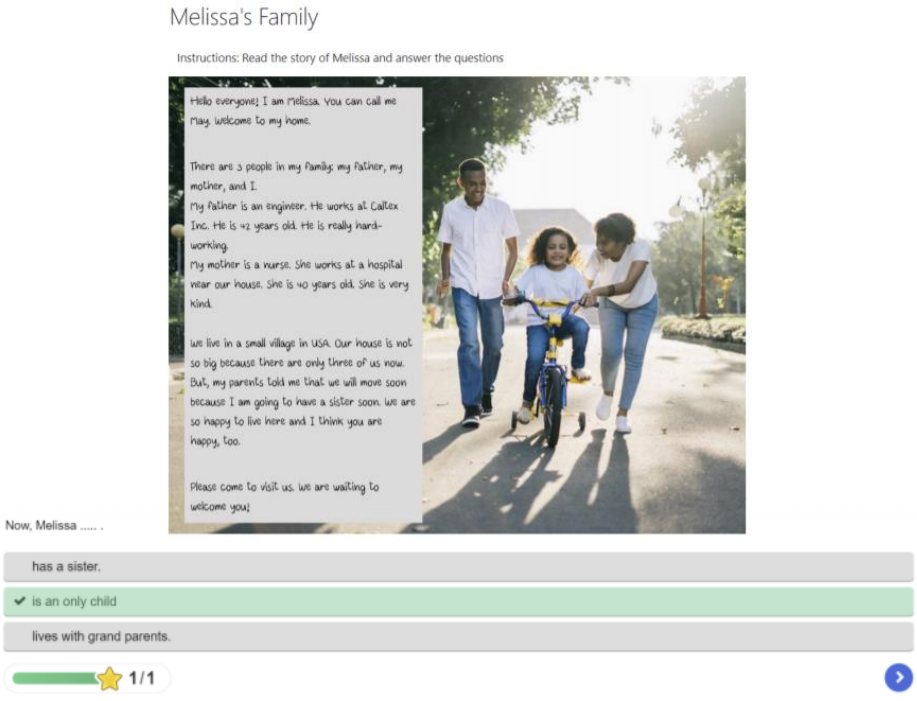

Figure 8: Example of reading test and self-assessment at the end of the chapter in the "A" (assessment) stage

Table 2 presents a summary of activity design in the smart learning platform using various functions on H5P.

Table 2: Design of English learning activities in the digital learning platform

TIGA stage	Objectives	H5P functions
"T" (Task)	Explain the main tasks of the lesson as specified in the textbook.	○ Image hotspot ○ Find the hotspot
"I" (Input)	Develop the body of knowledge necessary to perform the assignments of the lesson.	*Reading, vocabulary, and grammar development activities:* ○ Quiz ○ Find the words ○ Image pairing ○ True or false ○ Drag and drop ○ Memory game *Listening and speaking development activities:* ○ Dictation ○ Speak the words ○ Interactive video *Writing development activities:* ○ Fill in the blank ○ Drag the words
"G" (Genre)	• Give examples of text models of different types of communication (genres), communication functions of various elements, and moves of those types of messages. • Practice using the language in sub-tasks and main tasks.	○ Drag and drop ○ Drag the words ○ Sort the paragraphs

TIGA stage	Objectives	H5P functions
"A" (Authentic assessment)	• Test students' knowledge of that chapter by reading the text in each type. • Evaluate knowledge and understanding at the end of the lesson.	○ Quiz ○ True or false ○ Self-evaluation ○ Learning style test

5.2 Feedback after Implementing the TIGA Digital Learning Platform

The results from the questionnaire and group discussions with the participating teachers and students following implementation of the TIGA DLP are presented in this section.

The questionnaire aimed to evaluate students' satisfaction with the TIGA DLP in three aspects, namely content, pedagogy (activities & learning), and technology acceptance. The results of the questionnaires administered to the 212 students from 8 schools in 4 provinces of Thailand are presented in Table 3.

Table 3: Students' satisfaction with the TIGA digital learning platform

Aspect of the digital learning platform	$\bar{x}$	SD	Interpretation
Content	**3.36**	**0.81**	**Strongly satisfied**
Objective	3.31	0.83	Strongly satisfied
Appropriate	3.36	0.83	Strongly satisfied
Understandable	3.34	0.81	Strongly satisfied
Up to date	3.43	0.81	Strongly satisfied
Good for self-study	3.38	0.78	Strongly satisfied
Pedagogy (activities & learning)	**3.32**	**0.82**	**Strongly satisfied**
Supporting self-study	3.30	0.85	Strongly satisfied
Supporting collaborative learning	3.34	0.83	Strongly satisfied
Facilitating communication among classmates	3.36	0.79	Strongly satisfied
Facilitating communication with teacher(s)	3.30	0.80	Strongly satisfied
Encouraging info searching skills	3.28	0.83	Strongly satisfied
Technology acceptance	**3.32**	**0.83**	**Strongly satisfied**
Good design	3.28	0.82	Strongly satisfied
Easy navigation	3.27	0.81	Strongly satisfied
Speed & interaction rate	3.10	0.90	Satisfied
Friendliness	3.35	0.82	Strongly satisfied
Interaction modes	3.25	0.85	Strongly satisfied
Q&A system	3.40	0.85	Strongly satisfied
Repeated access	3.51	0.80	Strongly satisfied
Feedback system	3.26	0.85	Strongly satisfied
Monitoring system	3.33	0.80	Strongly satisfied
Learning report system	3.46	0.79	Strongly satisfied
Total	**3.33**	**0.82**	**Strongly satisfied**

Table 3 reveals high overall satisfaction with the DLP, with an average score of 3.33 (SD = 0.82) across various aspects. The content of the DLP was considered

relatively up to date, with this aspect scoring the highest ($\bar{x}$ = 3.43, SD = 0.81), and well-suited for self-study ($\bar{x}$ = 3.38, SD = 0.78), indicating that the students found the material current and appropriate for independent learning. In terms of pedagogy, the platform was commended for facilitating communication among classmates ($\bar{x}$ = 3.36, SD = 0.79) and with teachers ($\bar{x}$ = 3.30, SD = 0.80) and for supporting collaborative learning ($\bar{x}$ = 3.34, SD = 0.83). However, it scored slightly lower for encouraging information searching skills ($\bar{x}$ = 3.28, SD = 0.83), suggesting room for improvement in how it supports the development of these skills. The technology acceptance aspect showed varied results. While the students highly appreciated the ability to repeatedly access the platform ($\bar{x}$ = 3.51, SD = 0.80) and found the learning report system useful ($\bar{x}$ = 3.46, SD = 0.79), they reported less satisfaction with the speed and interaction rate, which was scored lowest ($\bar{x}$ = 3.10, SD=0.90). This points to potential issues in performance or interactive elements that could be enhanced to improve the overall learning experience.

Discussions with the teachers on using the TIGA DLP in the classroom revealed that this platform can be beneficial for the students in a school context. In terms of content, the teachers believed that most of the content was appropriate. However, they indicated that listening to and answering questions from the video is difficult. One teacher suggested slowing down the speech in the video to facilitate the students' listening and understanding process. Regarding teacher roles, they believed that teachers must learn new teaching methods. Although there may be barriers to the ability to use new technologies, teachers play an important role in students' learning from the platform. Teachers must be the key individuals to guide learning activities during students' first use and be responsible for periodically advising activities. The teachers also agreed that learning from the platform has changed the learning environment. Students learned English with much fun. Those who never answered in class dared to compete with friends to answer when doing activities on this platform. It is thus suitable for classes with students of various ability. This allows talented students to study ahead of their peers. As for young students, they gradually study according to their abilities. The teachers believed that most students could improve their English through the platform. However, Internet signal may still be a barrier to access. This may especially be a problem if many students study at the same time; and if students are to study at home or use their phones for activities, there may be signal problems at home.

Moreover, the group discussion with students after using the TIGA DLP provided clearer feedback. Most students had a positive opinion of the platform. They saw that using the platform to learn English differed from traditional classrooms, making learning more fun. The students liked using the platform more than just studying in books, as they can apply the knowledge gained from studying in daily life. The students agreed that learning from the platform should be a classroom activity rather than learning independently, because they can help each other do activities and have fun doing so with their peers. They also agreed that teachers must still be present during learning platform activities in the classroom. This is

important, because students still need to learn how to do the activities initially as they prefer to be confident before independent study.

The developed DLP is still in the developmental stage. However, it has valuable implications. The trial results from the questionnaire and discussion provided insights into the limitations and suggestions for improving research in the next phase and implementing the platform in practice. The limitations and suggestions can be divided into three areas, consisting of learning activities, the use of the DLP in teaching, and the graphical user interface (GUI) of the DLP.

First, for the learning activities, it was suggested that content from the textbook be added, which will also improve convenience in reviewing lessons to do various exercises. The number of learning activities in each chapter should also be increased. In addition, more videos should be added, but the speed of the speaking should be slowed down to improve listening and understanding and enable students to answer questions quickly. Word pronunciation in vocabulary exercises should also be increased. Furthermore, fill-in-the-blank activities that require students to add missing words or phrases should be adjusted to guided writing for Grade 7 students to facilitate finding answers, and the duration of activities be reduced to be consistent with the time during which students will feel engaged in the activities (engagement).

Second, it was suggested that the use of the DLP in teaching must have guidelines for teachers on using the learning platform and clearly defining the role of teachers. Learning, regardless of what format it takes, still requires a teacher in the classroom. This is because teachers are also an important factor in providing students with instructions, explanations, and assistance.

Finally, regarding the GUI of the DLP, the platform's appearance and graphics should be designed to be more exciting and attractive. The letters in exercise activities should be larger. Event illustrations should include actual photographic illustrations. The DLP should be more stable and fluid, for example, pages or questions must be arranged to fit the screen without the need to turn back and forth. The in-platform image scrolling in the image-matching activity should also be more accessible. Furthermore, the word completion activity should be adjusted because the keyboard obscures the input fields. Users should also be able to enlarge the image if they want to see it more clearly.

6. Discussion

The development and implementation of the TIGA DLP have provided significant insights into integrating TELL in Thailand, which has been focused on by the Office of the Basic Education Commission, MOE (2014). This initiative addresses the challenges faced by Thai teachers in adopting digital tools for English language instruction by providing a tailored platform that aligns with national educational standards and promotes self-directed learning.

The TIGA DLP successfully aligns with the Basic Education Core Curriculum 2008, CEFR, and PISA (Poonpon et al., 2022). This alignment ensures that the

platform meets national and international benchmarks for language proficiency, making it a valuable tool for enhancing students' English skills. The TIGA model, which stands for task-input-genre-assessment, integrates several key pedagogical strategies to support language learning. The task component focuses on engaging students in meaningful activities that reflect real-world language use. The input component provides learners with the necessary vocabulary, grammar, and language structures to perform tasks effectively. The genre component helps students understand different text types and their communicative purposes, enabling them to apply language skills in various contexts. Finally, the assessment component encourages authentic self-assessment and reflection, allowing students to gauge their progress and areas for improvement. The use of interactive multimedia content, such as quizzes, drag-and-drop activities, and interactive videos, significantly increased student engagement. This reflected findings from previous studies that highlighted the motivational benefits of digital applications in learning environments (Aramruangsakul, 2018; Penhataikul, 2022; Phenpran & Nahnjun, 2015; Sripanya, 2018).

However, both participating teachers and students highlighted the need for initial guidance in effectively using digital tools. Teachers play a crucial role in facilitating the digital learning environment, indicating that professional development and support for teachers are essential components of successful TELL implementation (Pichugin et al., 2022). Despite the platform's potential, issues such as Internet connectivity, especially in the small schools in remote areas, and the need for more robust digital infrastructure in schools were identified as significant barriers. Addressing these challenges is crucial for ensuring equitable access to digital learning resources across different regions (Juárez-Díaz & Perales, 2021).

The flexible design of the TIGA DLP allows it to be used in various teaching and learning contexts, including teacher-led activities, blended learning models, and autonomous student learning (Juárez-Díaz & Perales, 2021). This flexibility is vital for catering to the diverse needs of learners and adapting to different educational environments. The iterative development process, incorporating feedback from teachers and students, proved essential in refining the platform. Suggestions for additional content, improved usability, and enhanced multimedia elements demonstrate the importance of continuous improvement in educational technology (Faustmann et al., 2019).

Providing comprehensive training and ongoing support for teachers is crucial for maximizing the platform's effectiveness. Professional development should focus on integrating digital tools into the curriculum and addressing technological challenges (Law et al., 2010). Efforts should be made to enhance Internet connectivity and digital infrastructure in schools, particularly in rural areas. This will ensure that all students have equal access to the benefits of digital learning.

Increasing the variety and quantity of interactive activities and incorporating more multimedia content will further engage students and cater to different learning styles. Adjustments such as slower video narration and guided writing exercises can also enhance comprehension and participation (Yang & Chen, 2007).

Continuous refinement of the platform's GUI based on user feedback will improve usability. Ensuring that the platform is visually appealing, easy to navigate, and compatible with various devices will enhance the overall learning experience (Matschke et al., 2014). Ongoing research and evaluation of the platform's impact on student learning outcomes is essential. Longitudinal studies can provide valuable insights into the platform's effectiveness and inform future iterations (Panigrahi et al., 2018).

In brief, the TIGA DLP represents a significant step forward in integrating technology into English language education in Thailand. By addressing the specific needs of Thai students and aligning with national educational goals, the platform has the potential to revolutionize language learning and equip students with the skills needed to excel in today's globalized world. Continued support for teachers, improvements in digital infrastructure, and a commitment to user-centric design will be key to realizing the full potential of this innovative educational tool.

7. Conclusion

This study aimed to create engaging learning media by integrating various interactive elements and adapting content to learner needs. It considered factors influencing the success of digital learning platforms, such as personal, social, and institutional backgrounds. The results highlight the importance of tailoring digital tools to individual needs and behaviors for successful implementation. The study results demonstrate developing and implementing a DLP tailored to enhance English learning outcomes for Grade 7 students. Learning outcomes were meticulously designed to align with the Basic Education Core Curriculum 2008 and CEFR, emphasizing reading literacy and aligning with PISA. Each lesson within the platform was structured to achieve specific learning objectives, facilitating comprehensive language acquisition. The platform's architecture utilized open standards and web services to ensure seamless integration and data exchange, although challenges with integration were noted. Content and learning activities were derived from the TIGA English learning model, comprising tasks, language input, genres, and assessments tailored to foster various language skills. The platform's effectiveness was evaluated through reflections from teachers and students across eight schools, highlighting its positive impact on student engagement and competency. Limitations were identified, including the need for additional learning activities, clearer teacher guidelines, and enhancements to the platform's GUI. These findings highlight the potential of the DLP to augment English language learning and inform future improvements in digital learning environments.

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9. References

Abel, R., Brown, M., & Suess, J. (2013). A new architecture for learning. *Educause Review, 48*(5), 88–102. https://er.educause.edu/articles/2013/10/a-new-architecture-for-learning

Ahmadi, M. R. (2018). The use of technology in English language learning: A literature review. *International Journal of Research in English Education, 3*(2), 115–125. https://doi.org/10.29252/ijree.3.2.115

Akman Yeşilel, D. B. (2016). Technology-enhanced language learning for digital natives. *Participatory Educational Research (PER), Special Issue 2016-IV*, 97–111. https://www.perjournal.com/archieve/spi_16_4/per_16_spi_4_14.pdf

Aramruangsakul, N. (2018). Thai high school students' perceptions on the use of Kahoot as an educational tool in the English language classroom. *International Journal of Management and Applied Science (IJMAS), 4*(5), 28–34. https://worldresearchlibrary.org/up_proc/pdf/1456-152534841715-21.pdf

Carr, N. T., Crocco, K., Eyring, J., & Gallego, J. C. (2011). Perceived benefits of technology enhanced language learning in beginning language classes. *IALLT Journal of Language Learning Technologies, 41*(1), 1–32. https://doi.org/10.17161/iallt.v41i1.8480

Faustmann, G., Lemke, C., Kirchner, K., & Monett, D. (2019). Which factors make digital learning platforms successful? [Conference session]. *Proceedings of the 13th Annual International Technology, Education and Development Conference* (pp. 6777–6786). https://doi.org/10.21125/inted.2019.1651

Ghanizadeh, A., Razavi, A., & Jahedizadeh, S. (2015). Technology-enhanced language learning (TELL): A review of resources and upshots. *International Letters of Chemistry, Physics and Astronomy, 54*, 73–87. https://doi.org/10.18052/www.scipress.com/ILCPA.54.73

Hazaymeh, W. A. (2021). EFL students' perceptions of online distance learning for enhancing English language learning during Covid-19 pandemic. *International Journal of Instruction, 14*(3), 501–518. https://doi.org/10.29333/iji.2021.14329a

Herrholtz, K. (2020, March 6). Rapid instructional design with SAM. *eLearning Industry*. https://elearningindustry.com/sam-successive-approximation-model-for-rapid-instructional-design

Hu, L., Chen, G., Li, P., & Huang, J. (2021). Multimedia effect in problem solving: A meta-analysis. *Educational Psychology Review, 33*(3), 1717–1747. https://doi.org/10.1007/s10648-021-09610-z

Juárez-Díaz, C., & Perales, M. (2021). Language teachers' emergency remote teaching experiences during the COVID-19 confinement. *Profile: Issues in Teachers' Professional Development, 23*(2), 121–136. https://doi.org/10.15446/profile.v23n2.90195

Kipper, L. M., Iepsen, S., dal Forno, A. J., Frozza, R., Furstenau, L., Agnes, J., & Cossul, D. (2021). Scientific mapping to identify competencies required by Industry 4.0. *Technology in Society, 64*, 1–9. https://doi.org/10.1016/j.techsoc.2020.101450

Kranthi, K. (2017). Technology enhanced language learning (TELL). *International Journal of Business and Management Invention*, *6(2)*, 30–33. https://www.ijbmi.org/papers/Vol(6)2/version-4/E0602043033.pdf

Law, K. M., Lee, V. C., & Yu, Y. T. (2010). Learning motivation in e-learning facilitated computer programming courses. *Computers & Education, 55*(1), 218–228. https://doi.org/10.1016/j.compedu.2010.01.007

Matschke, C., Moskaliuk, J., Bokhorst, F., Schümmer, T., & Cress, U. (2014). Motivational factors of information exchange in social information spaces. *Computers in Human Behavior, 36*, 549–558. https://doi.org/10.1016/j.chb.2014.04.044

Muntrikaeo, K., & Poonpon, K. (2022). The effects of task-based instruction using online language games in a flipped learning environment (TGF) on English oral communication ability of Thai secondary students. *Canadian Center of Science and Education, 15*(3), 1–9.

Office of the Basic Education Commission. (2014). *ประกาศกระทรวงศึกษาธิการเรื่องนโยบายการปฏิรูปการเรียนการสอนภาษาอังกฤษ* [Ministry of Education announcement re: English language teaching and learning reform policy]. Minister of Education.

Panigrahi, R., Srivastava, P. R., & Sharma, D. (2018). Online learning: Adoption, continuance, and learning outcome—A review of literature. *International Journal of Information Management, 43*, 1–14. https://doi.org/10.1016/j.ijinfomgt.2018.05.005

Park, E. (2022). An examination on EFL preservice teachers' development of core competencies through technology-enhanced language learning. *Journal of Language Teaching and Research, 13*(4), 697–706. https://doi.org/10.17507/jltr.1304.02

Patel, D. S. (2014). Significance of technology enhanced language learning (TELL) in language classes. *Journal of Technology for ELT*. https://sites.google.com/site/journaloftechnologyforelt/archive/vol-4-no-2-1/2?pli=1

Penhataikul, S. (2022). The implementation of Quizizz application to enhance reading comprehension ability of Mathayomsuksa 2 students. *Chulalongkorn Journal of Buddhist Studies, 13*(1). https://so02.tci-thaijo.org/index.php/JBS/article/view/256358

Phenpran, N., & Nahnjun, S. (2015). การเรียนรู้คำศัพท์ภาษาอังกฤษโดยใช้เกมประกอบการสอนของ นักเรียนชั้นประถมศึกษาปีที่ 6 โรงเรียนวัดทุ่งน้อย อำเภอกุยบุรี จังหวัดประจวบคีรีขันธ์ [A study of English vocabulary using the instructional games of Prathom Suksa six students, Wat Thung Noi School, Kui Buri district, Prachuapkhirikhan province.] *Journal of Veridian E-Journal*, *8*(2), 1672–1684. https://he02.tci-thaijo.org/index.php/Veridian-E-Journal/article/view/40427

Pichugin, V., Panfilov, A., & Volkova, E. (2022). The effectiveness of online learning platforms in foreign language teaching. *World Journal on Educational Technology: Current Issues, 14*(5), 1357–1372. https://doi.org/10.18844/wjet.v14i5.7861

Poonpon, K., Chansanam, W., Srisawat, C., & Poochanon, T. (2021). *Design and evaluation of a game-based language learning web application for English language learners in Thailand* [Conference session]. Proceedings of the 29th International Conference on Computers in Education. Asia-Pacific Society for Computers in Education.

Poonpon, K., Liangpanit, C., Saengpakdeejit, R., Scherer, A., & Phantharakphong, P. (2018). *Smart English student's book 2*. Khon Kaen University Publisher.

Poonpon, K., Satthamnuwong, B., & Sameephet, B. (2016). *Development of English language teaching model for junior high school students in northeast of Thailand* [Research report]. Khon Kaen University.

Poonpon, K., & Satthamnuwong, B. (2018). *Smart English student's book 1*. Khon Kaen University Publisher.

Poonpon, K., Satthamnuwong, B., & Sameephet, B. (2022). The effectiveness of task-based and genre-based integrated learning on English language proficiency of Thai rural secondary school students. *Theory and Practice in Language Studies, 12*(9), 1736−1747. https://doi.org/10.17507/tpls.1209.05

Shadiev, R., & Yang, M. (2020). Review of studies on technology-enhanced language learning and teaching. *Sustainability, 12*(2), 524. https://doi.org/10.3390/su12020524

Sripanya, T. (2018). *Effects of the gamification tool Kahoot! on secondary school students' English reading skills* [Master's thesis]. Thammasat University. https://ethesisarchive.library.tu.ac.th/thesis/2018/TU_2018_5921040555_11011_10965.pdf

Sumter, D., de Koning, J., Bakker, C., & Balkenende, R. (2021). Key competencies for design in a circular economy: Exploring gaps in design knowledge and skills for a circular economy. *Sustainability, 13*(2), 776. https://doi.org/10.3390/su13020776

Tafazoli, D., & Chirimbu, S. (2013). *Language & technology: Computer assisted language learning*. Khate Sefid Press.

Tseng, S. (2019). Technology and learning English. *International Journal of Liberal Arts and Social Science, 7*(1), 14–29.

Upara, S., & Chusanachoti, R. (2023). From real world to classroom: Navigating English language learning through autonomy-supportive instruction and out-of-class resources in Thai EFL context. *LEARN Journal: Language Education and Acquisition Research Network, 16*(2), 572–587.

Yang, S. C., & Chen, Y. (2007). Technology-enhanced language learning: A case study. *Computers in Human Behavior, 23*(1), 860–879. https://doi.org/10.1016/j.chb.2006.02.015

Zainuddin, N. (2023). Technology enhanced language learning research trends and practices: A systematic review (2020–2022). *Electronic Journal of e-Learning, 21*(2). https://doi.org/10.34190/ejel.21.2.2835

Appendix 1

Questionnaire
Users' Satisfaction with the TIGA Digital Learning Platform

Part1: Personal information

Directions: Please mark the boxes that correspond to your personal information.

Gender: ☐ Male ☐ Female

Provinces: ☐ Khon Kaen ☐ Nakhon Ratchasima
☐ Udon Thani ☐ Ubon Ratchathani

Part 2: Users' Satisfaction with the TIGA Digital Learning Platform

Directions: Please evaluate your satisfaction with the TIGA Digital Learning Platform based on the following aspects. Rate each item on a scale from 1 to 4.

1 indicates 'Strongly dissatisfied'
2 indicates 'Dissatisfied'
3 indicates 'Satisfied'
4 indicates 'Strongly Satisfied'

Evaluate how well each statement matches your experience with the platform.

Aspects	1	2	3	4
Content				
- The contents are consistent with the objectives and curriculum.				
- The contents are appropriate for the required core contents and curriculum.				
- The contents are easy to understand by reading or studying.				
- The contents are up to date.				
- The contents consist of various types of high quality media and good for self-study.				
Pedagogy				
- There are tools and activities that support self-study.				
- There are tools and activities that support collaborative learning.				
- There are tools and activities for facilitating communicating among classmates.				
- There are tools and activities for facilitating communicating with the teacher(s).				
- There are tools and activities that encourage information researching skills, data storage, and use of information from other sources.				
Technology Acceptance				
- The design, layout, color scheme, and interface of the platform are appropriate.				
- There are convenient and easy-to-use navigation tools.				
- The rate of speed and interaction rate of the platform is at an acceptable level.				
- The platform is user-friendly, not complicated, and easy to use.				
- There is a variety of convenient and diverse user interaction modes.				

Aspects	1	2	3	4
- A system for collecting questions and answers is appropriate.				
- Repeated access and multiple attempts are allowed with the explanations or solutions for correct answers.				
- A feedback system is helpful.				
- There is a monitoring system for reporting learning outcomes that is easy to understand and useful.				
- There is a learning report system for self-monitoring and assessment.				

Part 3: Suggestions for further development of TIGA Digital Learning Platform

Directions: Please answer the following open-ended questions to provide your feedback on how we can improve the TIGA Digital Learning Platform.

1. What do you like most about the digital learning platform?

_____
_____
_____
_____
_____

2. What do you think should be added to the digital learning platform to make it better?

_____
_____
_____
_____
_____

********** Thank you for your cooperation. **********

Appendix 2

Students/Teachers Interview Form

The Effectiveness of the Smart English Digital Learning Platform [Prototype]

in Learning English

Interviewees: Grade 7 students and teachers

Format: Small group discussions for students/Individual teachers

Instructions: Ask the students/teachers the following questions after they have used the Smart English Digital Learning Platform:

1. Is the platform/application **easy** to access? How **convenient** is it to access different parts and contents?
2. Do you think the platform/application is **usable**? To what extent is it usable?
3. Do you think the activities or games I each lesson are **varied**, **complete**, and **appropriate**?
4. How **interesting** is each lesson on the platform/application? To what extent does it **motivate** you to learn English?
5. Do you like the **images**, **illustrations**, **video clips**, and **color schemes** used in the lessons on the platform/application? How do you like or dislike it?
6. Do you think the platform/application is **suitable** for online learning? Why?
7. What do you think **if your teacher used this platform/application in your class**, such as assigning homework online?
8. What do you **like and dislike** about the platform/application?
9. Do you have any additional **suggestions** that could make these lessons more interesting?