

Multimodal Text-Powered Interactive E-Module for Enhancing English Structure Learning

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ABSTRACT

This study aimed to develop an interactive e-module based on multimodal text for the Intermediate English Structure course in supporting digital learning at Universitas Riau, Indonesia. The research followed a systematic Research and Development (R&D) approach and applied the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) model, which integrated the initial research techniques with final evaluation methods to ensure the effectiveness of the e-module. This study utilized purposive sampling techniques which involved 42 students and experts in media and materials. The development started with a thorough analysis of students' needs, obtaining a score of 3.05 which indicated high necessity. The subsequent step involved designing the desired product, which is an interactive e-module containing multimodal texts, that is, various types of texts which include written texts, images, animated videos and interactive quizzes. The e-module consists of six units; each containing sections such as video-based explanation, text-based descriptions, illustrative examples, interactive quizzes, and chapter summaries. Validation of the e-module was carried out by material and media experts, resulting in scores of 3.73 (indicating very valid) and 3.77 (indicating very valid) respectively. Then, when tested to students, the results revealed a 'clarity of language use in the learning material' indicator is 3.57 (indicating very good), while the 'ease of use' indicator stands at 3.60 (indicating very good). Thus, these results suggest that the developed e-module exhibits excellent quality and is well-suited to serve as a digital learning resource for the Intermediate Structure course in the English department at Universitas Riau, Indonesia. Furthermore, this e-module also has the potential to transform how students learn. With combination of different types of content, the researchers have created a tool that can set a new standard for digital learning at Universitas Riau and beyond.

1. Introduction

In the digital era of learning, educators are required to adapt their teaching methods, content, evaluation techniques, and learning resources (Afrianto, 2018; Dudung, 2018; Novita & Sundari, 2020). The Ministry of Education, Culture, Research, and Technology has encouraged higher education institutions to integrate face-to-face learning (offline) with online learning (blended learning) both before and after the pandemic. Blended learning is also considered a relevant mode of instruction in the implementation of the Merdeka Belajar (Emancipated Learning) and Kampus Merdeka (Emancipated Campus) programs (Kemendikbudristek, 2023). Blended learning, a mix of face-to-face and online instruction, has gained prominence, particularly with initiatives like Merdeka Belajar and Kampus Merdeka (Kemendikbudristek, 2023).

Blended learning shows positive impacts on the effectiveness of learning. Several studies have shown that blended learning can improve students' learning outcomes (Ceylan & Kesici, 2017), including language learning (Tosun, 2015; Isti'annah, 2017). Other research has found that blended learning can enhance students' learning motivation (Oweis, 2018) and foster learner autonomy in the learning process (Sujannah et al., 2020).

For blended learning to succeed, it requires robust online learning infrastructure, such as a reliable Learning Management System and adequate availability of digital learning resources (Dangwal, 2017; Firdaus et al., 2020; Akimova et al., 2022). However, a challenge lies in the limited development of learning resources or course content by English Language department faculty at Universitas Riau to support blended learning. So far, the faculty members

mostly utilize learning resources developed by external parties. This dependence raises concerns about the institution's self-sufficiency in creating relevant and customized digital learning materials, particularly for the English Structure course. Hence, there is a need for innovative digital learning resources to fill this gap.

This dependence on external resources poses a challenge that impacts the institution's ability to provide customized and contextually relevant materials for the English Structure course. As such, the problem statement is formulated as: "How can valid multimodal-based interactive e-modules be developed for blended learning in the English Structure course at Universitas Riau? This research focuses on developing digital instructional materials for one of the courses in the English Language Education curriculum at Universitas Riau, namely the Structure course. This course covers the study of how language is constructed following English grammar rules, from word, phrase, sentence, and paragraph levels up to discourse. The course is divided into three levels: Pre-Intermediate Structure, Intermediate Structure, and Post-Intermediate Structure.

Understanding Structure and English grammar can be challenging for many students learning English as a foreign language (Renandya et al., 2018; Toba & Noor, 2019). The reasons behind this difficulty can be complex, including less communicative teaching methodologies by instructors or learning resources that do not fully support students' learning styles, making grammar learning tedious and even intimidating. Hence, this research is essential to address these issues.

The problem statement for this study is formulated as follows: "How can valid multimodal-based interactive e-modules be developed as learning resources for blended learning in the English Structure course at Universitas Riau?"

The approach used to address the problem above is by developing learning resources in the form of interactive e-modules using multimodal texts, including animated videos, interactive quizzes, images, and written texts (Kayati & Madura, 2022) related to the course material. Furthermore, problem-solving in this research is conducted through the development of teaching materials that adopt the TPCK (technological, pedagogical, content knowledge) principles (Mishra & Koehler, 2006) using the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation).

Previous research has explored the use of multimodal media in education. Generally, multimodal learning media have been found highly effective in improving students' literacy (Ganapathy & Seetharam, 2016) and language development (Gilakjani et al., 2011), including vocabulary acquisition, reading comprehension, and writing

performance (Kim & Belcher, 2020). This is because multimodal approaches involve various modes (text, images, audio, and video) that support a more interactive and personalized learning experience for students (Qushem et al., 2021). Additionally, the use of multimodal texts has been found to train students' metacognitive abilities, which play a crucial role in their thinking and learning success (Sharma et al., 2020), reading (Cahyaningati & Lestari, 2018; Saputra & Andriyani, 2018), listening (Tao et al., 2017; Sariçoban & Yürük, 2016), writing (Jiang, 2018), and speaking skills (Jeong, 2018; Kohnke et al., 2021). Furthermore, this positively impacts students' acquisition and development of new vocabulary (Anari et al., 2019; Ramezanali & Faez, 2019).

Although some previous studies have examined the effectiveness of using multimodal texts in English grammar learning (Abdo & Al-Awabdeh, 2017; Lee & Révész, 2020; Djoudi & Boukhedimi, 2022), there is still a gap in the literature. There have been very few specific studies that explore the use of multimodal-based interactive e-modules as learning resources for English Structure in higher education. Most research on English e-module development has been conducted for primary and secondary education levels, addressing other aspects such as narrative texts and English for children (Mahendra & Arianto, 2022; Ardelia et al., 2022). While there are some studies related to e-module development in higher education contexts (Rahman et al., 2019; Daud et al., 2022; Simanjutak et al., 2022), their focus was not on developing interactive multimodal-based e-modules. Instead, these studies mostly used limited modalities and lack of interactivity.

While blended learning has gained much attention in recent years, the development of interactive multimodal-based e-modules on English Structure course in higher education remains underexplored. This research aims to fill this gap by innovatively employing multimodal texts and the ADDIE model to enhance English language learning. This research not only addresses pressing challenges in English grammar education but also contributes significantly to applied linguistics by offering a pioneering approach in the development of interactive multimodal-based e-modules. These contributions have broader implications for language education, learner autonomy, and metacognitive development.

This paper explores the background of digital learning at Universitas Riau, focusing on the challenges encountered by the English Language faculty in creating custom content for the Intermediate English Structure course. It then outlines the research methodology, including the approach, tools, and principles used in creating multimodal-based interactive e-modules. The findings and their implications are discussed next, highlighting the advantages of self-developed course materials. The conclusion summarizes the study's contributions to

English language education and its broader impact on digital learning in higher education.

2. Literature Review

2.1 Learning in the Digital Era

Learning is an educational activity conducted by teachers to enhance and develop students' knowledge (Afif, 2019). Sudjana (2021), on the other hand, defines learning as a deliberate effort by educators to encourage students to engage in learning activities.

The digital era refers to a time when society's daily routines are heavily reliant on digital systems (Rahayu, 2019). Progress in the digital era is closely linked to the realm of knowledge. In the context of education, digital learning, also known as E-learning (Sutjipto & Kustandi, 2011), refers to the application of technology in the field of education. It aims to bridge the gap between traditional classroom learning and technology-driven learning by utilizing the internet to facilitate and enhance the learning process. Digital learning serves as a tool that enables students to access vast and comprehensive knowledge, offering them the flexibility to learn at their own pace.

According to Kitao and Kitao (1997), digital learning presents three potential benefits in daily life, serving as a communication tool, providing access to information, and facilitating education.

- a) Communication Tool: Digital learning makes communication more accessible and efficient, enabling interactions through emails and various communication applications.
- b) Access to Information: Digital learning enhances information accessibility, enabling people to obtain various types of information such as weather updates, social news, economic data, and more.
- c) Educational Tool: Digital learning serves as a powerful educational resource by enabling the exchange of information and knowledge among educational institutions worldwide.

Furthermore, Munir (2017) highlights three functions of digital learning within the learning process, acting as a supplement, complement, and substitution.

- a) Supplement Function: Digital learning supplements traditional learning resources, providing additional material to support students' understanding through electronic media.
- b) Complement Function: Digital learning complements the learning process by providing supplementary content and resources through electronic media to enhance students' comprehension.
- c) Substitution Function: Digital learning aids students in managing their time and activities more efficiently, allowing for a more flexible learning experience.

Digital learning offers several advantages. Shearer (2003) cited in Munir (2017) emphasizes that digital learning significantly contributes to the quantity of teacher-student interactions, spreading learning interactions more widely compared to traditional face-to-face learning. Carrol et al. (2001) cited in Munir (2017) explains that digital learning interactions are supported by digital tools such as emails, chat platforms, and video streaming.

Additionally, digital learning has become particularly relevant in the context of the COVID-19 pandemic, where the reliance on online education has surged. The integration of technology has not only transformed traditional educational practices but has also become essential for remote learning and ensuring educational continuity during challenging times.

2.2 Learning Resources

Learning resources encompass various elements, such as objects, data, facts, ideas, people, and more, that facilitate the learning process (Samsinar, 2020). These resources include textbooks, modules, student worksheets (LKS), realia, models, markets, museums, zoos, and more. Prastowo (2018) shares a similar definition, stating that learning resources are anything that stimulates the learning process, including objects, data, facts, ideas, and people. Sudjana and Prastowo (2018) classify learning resources into five categories:

- a) Printed Learning Resources: This category includes books, brochures, newspapers, posters, dictionaries, and other printed materials.
- b) Non-printed Learning Resources: This category encompasses films, slides, models, transparencies, and physical objects used for learning.
- c) Library Facilities-Based Learning Resources: This category comprises study rooms, studios, fields, and other learning environments provided by libraries.
- d) Activity-Based Learning Resources: This category involves interactive learning activities such as interviews, group work, observations, simulations, and games.
- e) Environment-Based Learning Resources: This category includes learning resources found in the surrounding environment, such as gardens, terminals, markets, factories, and more.

Learning resources consist of four components: purpose, form or physical condition, conveyed message, and the level of difficulty or complexity for using the resources. These resources are influenced by technological, cultural, and economic developments. The use of learning resources supports teachers in delivering learning concepts effectively and helps students comprehend the learning material.

Learning resources are sometimes referred to as teaching materials, which encompass learning units containing materials, teaching models, methods, and

evaluation tests designed innovatively and efficiently to achieve specific learning objectives (Cahyono et al., 2018; Wulandari & Oktaviani, 2021).

In the digital age, learning resources have expanded to include a abundance of online materials, interactive simulations, and virtual environments. This shift has not only broadened the accessibility of resources but has also introduced dynamic and engaging tools that cater to diverse learning styles and preferences.

2.3 Interactive E-Module

The term "e-module" is derived from the combination of "e" or "electronic" and "module." Simarmata et al. (2017) defines a module as a well-structured learning unit designed to assist students in achieving specific objectives. The module is tailored to individual learners to maximize their intellectual abilities, considering their understanding speed. In the current era of information technology, learning modules have undergone a transformation from print to digital media, known as electronic modules (e-modules).

An e-module, or electronic module, refers to a digital learning resource systematically designed with various elements, such as texts, images, animated videos, experimental videos, simulations, and competence tests. This interactive approach engages students in the learning process. The media also offers teachers opportunities to develop teaching techniques, resulting in more effective outcomes (Sugianto et al., 2013). More specifically, an interactive e-module is a learning resource systematically and engagingly designed to achieve the competencies/sub-competencies of a specific course according to its complexity level.

Interactive learning involves interactions between students and teachers, as well as between students and the learning media, to enhance the learning quality (Wiyoko, 2014). The interactive principle entails creating an environment that stimulates students to learn, moving beyond the mere transfer of knowledge from teachers to students (Hupbing et al., 2012).

The rise of interactive e-modules has revolutionized traditional teaching methods, providing a dynamic and engaging platform for students. Incorporating multimedia elements, such as animations and simulations, interactive e-modules foster a more immersive and participatory learning experience.

2.4 English Language Structure Learning

English, as a foreign language, involves four language skills: listening, speaking, reading, and writing. Listening and reading are considered receptive skills, while speaking and writing are categorized as productive skills. To master these skills, students require sufficient knowledge of language aspects, including structure, pronunciation, spelling,

and vocabulary. This knowledge empowers students to use English accurately and effectively.

The English Language Education curriculum at Universitas Riau includes the English Structure course, divided into three semesters: Intermediate Structure (first semester), Intermediate Structure (second semester), and Post Intermediate Structure (third semester), each worth three credits. This reflects the course's significance, with students required to complete a total of nine credits and pass the subject. Robert Krohn has authored a notable book titled "English Sentence Structure" dedicated to Structure. Nowadays, Structure topics are commonly found in grammar books like "Basic English Grammar," "Fundamentals of English Grammar," and "Understanding and Using English Grammar" by Betty Schramper Azar, among others. Other grammar books include "English Grammar in Use" by Raymond Murphy, "A Practical English Grammar" by A.J Thomson and A.V Martinet, and more. Grammar, according to Gerngross et al. (2006), is the study of language forms or structures, describing the rules for forming sentences in a specific language. In essence, grammar concerns language structure, while structure refers to sentence patterns.

The integration of technology into English language structure learning aligns with the broader trend of incorporating digital tools to enhance language education. Studies exploring the effectiveness of digital interventions in language learning, including grammar and sentence structure, have shown promising results. However, it's essential to acknowledge the ongoing debate about the optimal balance between traditional pedagogical approaches and digital tools in language education.

2.5 Previous Studies

Numerous studies and developments have been conducted regarding the creation of e-modules using a flip-book maker across various fields of study and educational levels. Some of them include Triwahyuningtyas et al. (2020) in Mathematics at elementary school (SD), Wibowo & Pratiwi (2018) and Rasiman & Agnita (2014) in Mathematics at junior high school (SMP), Susanti et al. (2020) in Physics at senior high school (SMA), Simatupang & Sormin (2020) in Chemistry at SMA, Fonda & Sumargiyani (2018) in Mathematics at SMA, Nufus et al. (2020) in the field of Chemistry at Madrasah Aliyah (MA), Fahmi et al. (2019) in Mathematics lectures at higher education institutions (PT), Mulyaningsih & Saraswati (2017) in the Select Physics Subject in School, Wahyuni et al. (2018) in the Basic Chemistry course, Divayana et al. (2020) in the Assessment and Evaluation course at higher education institutions. In general, the results of these studies have had a positive impact on learning, including the latest development research conducted

by Nurhayani et al. (2022) on acid-base titration material at MAN Batubara North Sumatra.

Meanwhile, research on the development of interactive electronic modules using a flipbook maker in the field of English is still very rare, especially in the structure course. In 2022, the researchers developed an interactive e-module using a flipbook maker for English Structure learning (Daud et al., 2022). Previously, Nurjanah et al. (2021) developed a flip-book for the Appreciation and Fiction Prose Studies course with positive results but did not specify the software brand used. Considering the positive research results on the use of a flipbook maker in the first year of our project and the absence of its application in the English Language Education Study Program, especially in the Structure course, this year's research focused on the title "Multimodal Text-Powered Interactive E-Module for Enhancing English Structure Learning".

3. Method

The development of this research product is in the form of an interactive electronic module based on multimodal text, which includes text in the form of images, audio, video animations, and interactive quizzes. In greater detail, the development of this electronic module employs the ADDIE model, which was pioneered by Rusdi (2018) and comprises five distinct phases: analyze, design, develop, implement, and evaluate. This study exclusively selected students enrolled in the "Intermediate Structure" course unit where participants were purposefully selected based on the assessment of their learning needs and difficulties, in order to ensure the sample's representativeness and relevance. Prior to participation, the participants were provided with comprehensive information about the purpose of this study and agreed to sign the consent form voluntarily.

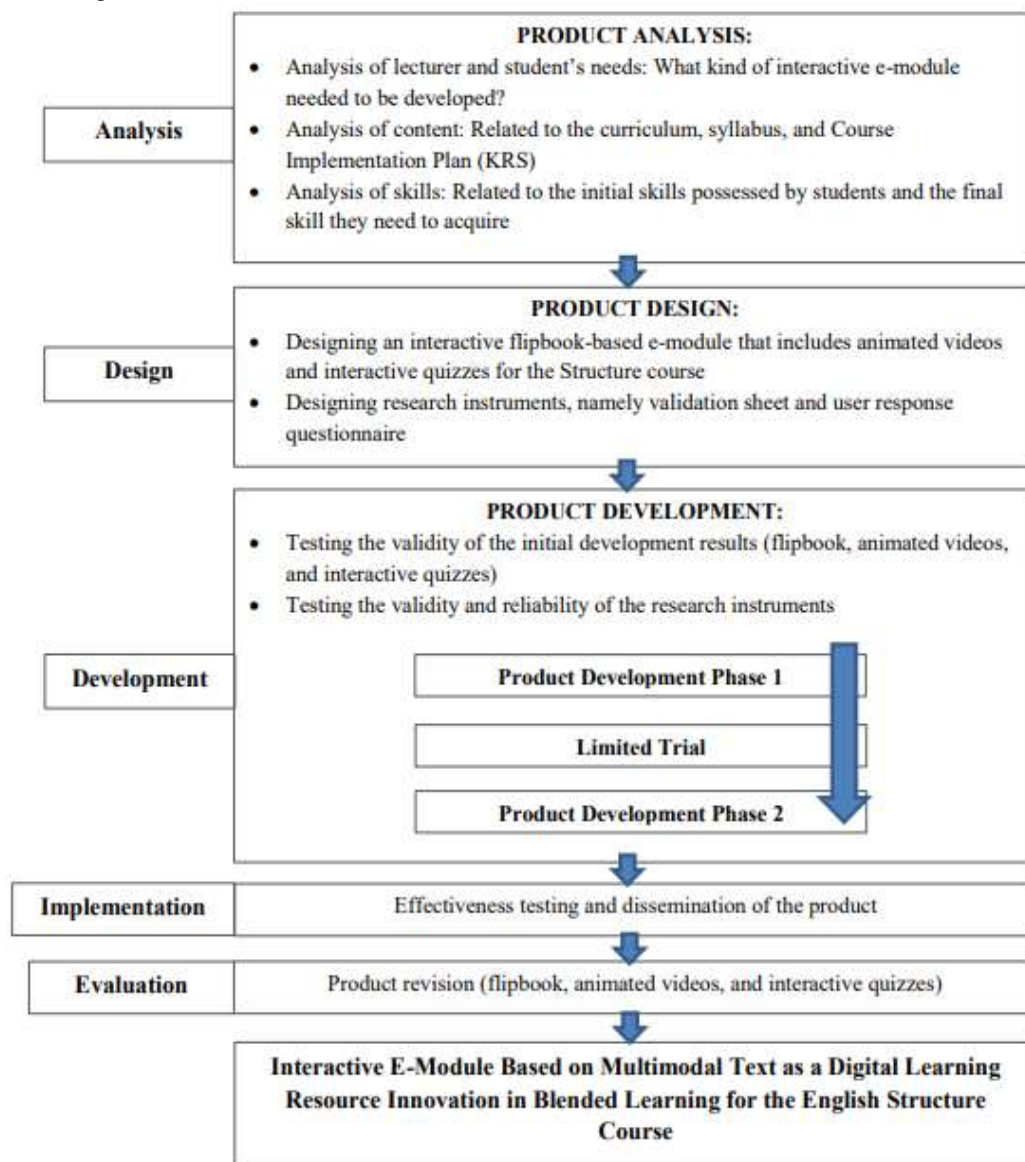


Figure 3.1. The Development Process of Interactive E-Module Based on Multimodal Text for the Intermediate Structure Course.

3.1 Analyze

The analysis phase was conducted to uncover the underlying reasons for creating an interactive electronic module-based multimodal text learning resource for Intermediate Structure education. This phase consisted of three stages of analysis: needs analysis, content analysis, and competency analysis.

- a) Content Analysis: This involved reviewing curriculum documents and semester lesson plans (RPS) for the Intermediate Structure course unit.
- b) The Student Proficiency Analysis: This stage focused on assessing the initial grammar proficiency of the targeted students.
- c) Needs Analysis: This stage sought insights into students' specific learning needs and preferences. Through surveys, interviews and discussions, the researchers gathered valuable information directly from the students in order that the developed e-module aligns with what they need and prefer.

3.2 Design

Once the analysis activities were completed, the design of an interactive e-module that met the criteria was undertaken. The activities in this planning stage included:

- a) Designing a multimodal text-based interactive e-module (flipbook) that contained explanatory text materials, images, video animations, and interactive quizzes.
- b) Designing research instruments, namely Validation Sheets and User Response Questionnaires.

3.3 Develop

During the planning stage, the first-phase product was developed, which consisted of a multimodal text-based interactive electronic module integrated with a flipbook application for the Intermediate Structure course. Subsequently, an assessment or validation was conducted to obtain recognition and approval of the suitability of the learning module, deemed suitable and appropriate for use in the learning process, based on expert input and limited pilot testing. This can be referred to as the second-phase product.

The validator evaluates various facets of the assessment using a scoring scale ranging from 1 to 4, where 1 signifies very bad or inappropriate, 2 indicates fairly good, 3 represents good or satisfactory, and 4 indicates excellent. The research findings are presented in a tabular format and subjected to descriptive analysis. The validity criteria align with [Sugiyono's \(2016\)](#) formulation, as depicted in the table below:

Table 3.2. Validity Criteria

| No | Interval Mean Score | Validity Category |
|----|---------------------|-------------------|
| 1 | $3.25 \leq x < 4$ | Very valid |
| 2 | $2.5 \leq x < 3.25$ | Valid |
| 3 | $1.75 \leq x < 2.5$ | Not valid |
| 4 | $1 \leq x < 1.75$ | Invalid |

3.4 Implement

The implementation phase involved conducting a pilot test of the second-phase product that had been developed, with the aim of obtaining the final product. This stage consisted of assessing the effectiveness of the e-module on a small group of participants, specifically English education students at the University of Riau, and disseminating the e-module through a website accessible to the public.

3.5 Evaluate

The evaluation phase was a continuous step conducted in each cycle of developing the multimodal text interactive e-module for the Intermediate Structure course. The evaluation in each cycle was referred to as formative evaluation, aiming to revise the product at each stage of development. The formative evaluation means that the researchers constantly checked and improved it in each

development cycle which aimed to make the product better at every stage. In the case of this study, the evaluation was done by asking the students' feedback after using the e-module. The feedback was gathered through distributing a set of questionnaire containing quantitative and qualitative questions of how the students responded to the e-module.

4. Results

In this section, we present a more comprehensive analysis of the findings from each stage of the ADDIE process. We look into specific data, feedback, and observations, highlighting the impact of the interactive electronic module on students' comprehension of English sentence structure. This includes insights into their engagement levels, learning progress, and any challenges or improvements observed during the implementation phase. The results of this research are explained in

more details using the stages in the ADDIE development process: analyze, design, develop, implement and evaluate.

4.1 Analyze Phase

In this analysis phase, researchers identified the course objectives, students' characteristics and their learning needs. When identifying the course objectives of Intermediate Structure at the English Department of Riau University, researchers analyzed the syllabus and found out that there were 15 topics that spanned through 16 weeks including one session for course introduction. However, due to the limited time and funding, researchers decided to select 6 topics to be developed in the interactive e-module: Past Continuous Tense, Future Continuous Tense, Present Perfect Tense, Past Perfect Tense, Gerunds and Infinitives, and Passive Voices (Simple & Modals).

Next, when identifying the characteristics, researchers observed that the students were digitally competence since they use technological devices like cellular phones and laptops on everyday life. In addition, researchers identified the students' proficiency by considering the levels of the course. This e-module was planned for Intermediate Structure course and the students have passed the pre-requisite course, Pre-Intermediate Structure. Therefore, the materials in this interactive e-module were selected to match mid-level proficiency of the students.

Furthermore, to analyze their learning needs, a questionnaire was distributed related to the importance of developing interactive e-module. Thirty-five students participated in this survey. The results can be seen in the following table.

Table 4.1. Results of Students' Need Analysis

| No | Strongly Agree | Agree | Disagree | Strongly Disagree | Mean Score | Predicate |
|-------------------|--|-------|----------|-------------------|-------------|-------------------------|
| Q1 | Feel bored with online Intermediate Structure class | | | | | |
| | 1 | 13 | 19 | 2 | 2.37 | Necessary |
| Q2 | Lecturers need more interactive learning media | | | | | |
| | 8 | 25 | 1 | 1 | 3.14 | Highly Necessary |
| Q3 | Lack of sufficient interactive e-modules in the intermediate structure class | | | | | |
| | 1 | 10 | 23 | 1 | 2.31 | Necessary |
| Q4 | Interactive e-module expected to positively affect interest in the class | | | | | |
| | 7 | 27 | 1 | 0 | 3.17 | Highly Necessary |
| Q5 | Belief that interactive e-module will impact motivation in the class | | | | | |
| | 11 | 23 | 1 | 0 | 3.28 | Highly Necessary |
| Q6 | The use of interactive e-modules will make the class more enjoyable | | | | | |
| | 11 | 23 | 1 | 0 | 3.28 | Highly Necessary |
| Q7 | Understanding materials will be easier with interactive e-modules | | | | | |
| | 10 | 24 | 1 | 0 | 3.25 | Highly Necessary |
| Q8 | Desire for more interactive e-modules to aid understanding of the lessons | | | | | |
| | 12 | 19 | 4 | 0 | 3.23 | Highly Necessary |
| Q9 | Belief that learning will be more interactive with interactive e-modules | | | | | |
| | 8 | 27 | 0 | 0 | 3.22 | Highly Necessary |
| Q10 | The use of interactive e-modules will improve intermediate structure skills | | | | | |
| | 13 | 16 | 6 | 0 | 3.20 | Highly Necessary |
| Mean Score | | | | | 3.05 | Highly Necessary |

The table shows that in almost all the 10 questions, the respondents stated agree and strongly agree. Although some tended to disagree on question 1 and 3, the mean scores on those questions were above 2.00 which were categorized 'necessary'. In fact, the total mean score for all questions was 3.05 and considered as highly necessary. Based on these results, researchers decided to continue this project to the next stage, designing the product.

4.2 Design Phase

In this phase, the researchers designed the multimodal text-based interactive e-module and

research instruments. The multimodal texts consisting of explanatory texts, images, animated videos and self-response quizzes were designed for each of the six topics. Therefore, each chapter of the e-module could have one topic with multimedia elements and interactivity. These multimedia elements were first designed on different platforms before assembled into one complete book on Publuu. The written texts and images were designed on Microsoft Word, the animated videos were created using Powtoon application and the interactive quizzes were made on Quizziz. The researchers' design progression unfolds through the following four phases:

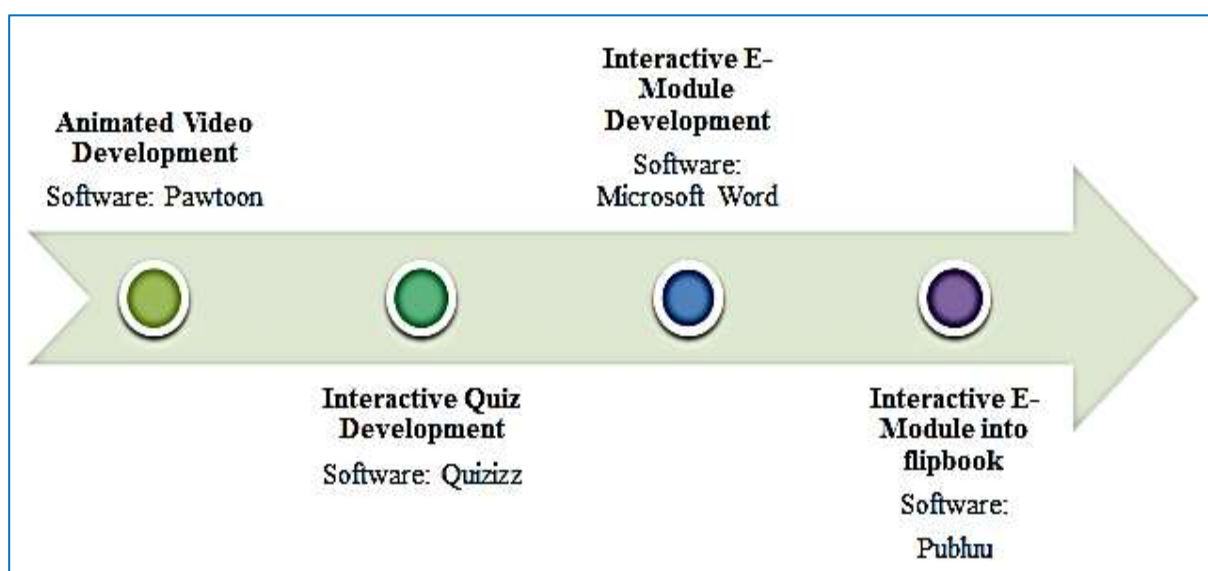


Figure 4.1. Interactive E-Module Development Design Flow

4.3 Development Phase

During this phase, content development was executed in accordance with the prior-stage designs until the product reached a state ready for validation. The validation process aimed to assess the suitability of the media before its implementation by educators and students. This validation involved the participation of both a subject matter expert and a media specialist. Some instances of the animated videos and the interactive quizzes are illustrated in Figures 4.2 through 4.8.



Figure 4.2. Screenshot of "Past Continuous Tense" Video

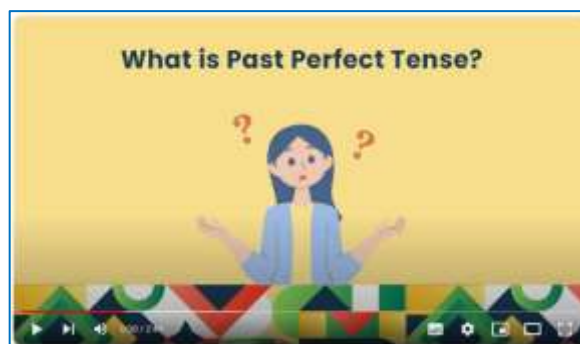


Figure 4.3. Screenshot of "Past Perfect Tense" video



Figure 4.4. Screenshot of "Gerunds & Infinitives" Video

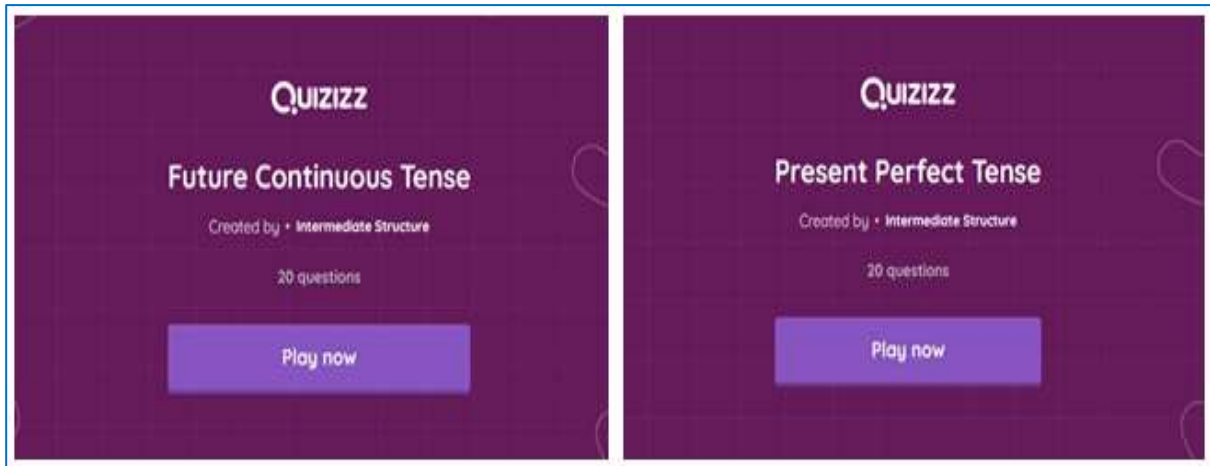


Figure 4.5. Screenshot of Interactive Quizzes 1

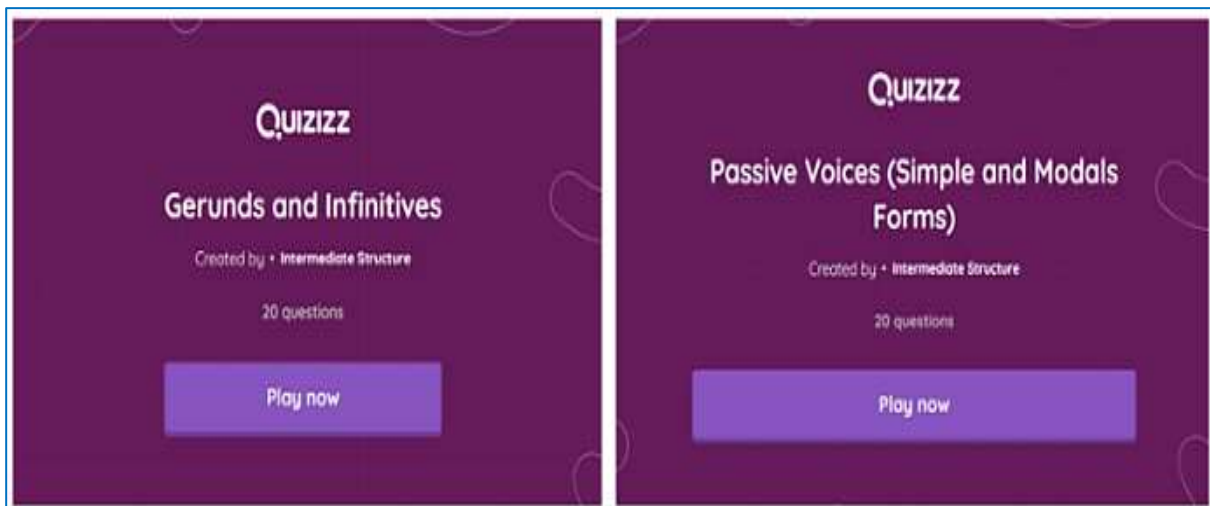


Figure 4.6. Screenshot of Interactive Quizzes 2

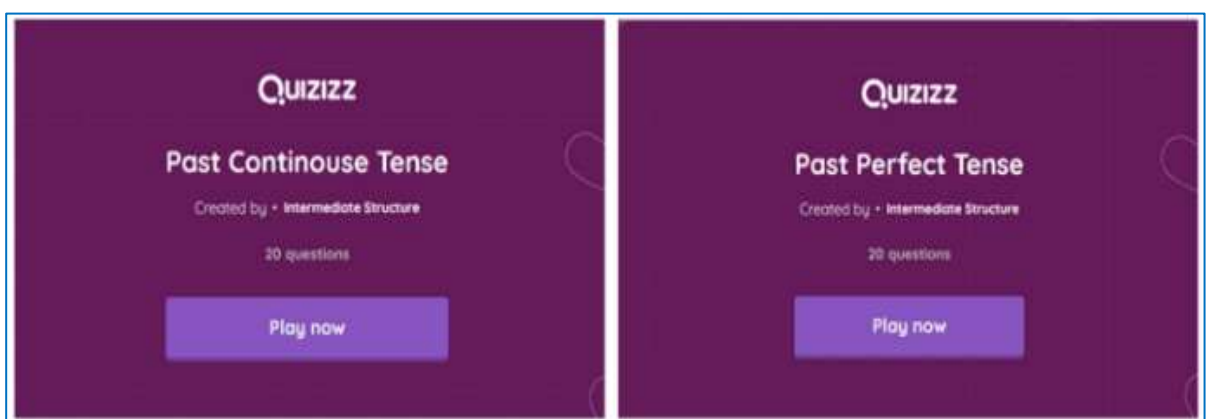


Figure 4.7. Screenshot of Interactive Quizzes 3

After the creation of the animated videos and interactive quizzes, they are incorporated into the e-module, which was initially crafted in Microsoft Word and later formatted into a PDF. The

development of the e-module was concurrent with that of the animated videos and interactive quizzes. Certain sections of the e-modules are showcased in the following figures:

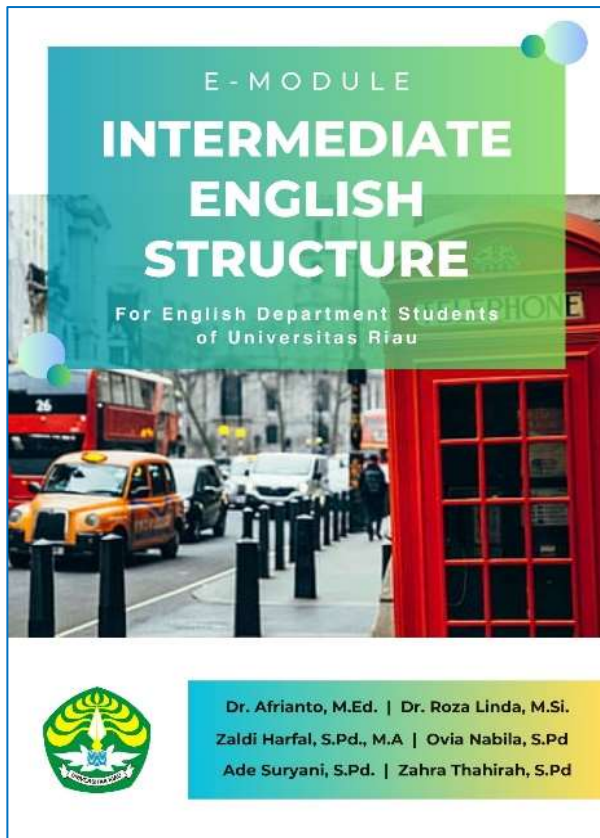


Figure 4.8. Cover of the Interactive E-Module

| TABLE OF CONTENTS | |
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| 1.6 Summary | 6 |
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| 2.3 General Formula | 9 |
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| 3.1 Video Explanation | 14 |
| 3.2 What is Present Perfect? | 14 |
| 3.3 General Formula | 15 |
| 3.4 Usage | 16 |
| 3.5 Exercises | 18 |
| 3.6 Summary | 18 |
| UNIT 4: PAST PERFECT TENSE | 19 |
| 4.1 Video Explanation | 20 |

Figure 4.9. Table of Contents of the E-Module

| GUIDELINE | |
|-----------|---|
| O | Learning Objectives Read the learning objectives to help you understand the focus of the study. |
| V | Watch the Video Watch and listen to the video explanation first. |
| M | Understand the Materials Read the descriptive materials to help you understand better. |
| E | Do the Exercises Do the given exercises to test your comprehension of the lesson. |
| S | Read the Summary Read the summary to give you an overview of the main points of each unit. |

Figure 4.10. Guidelines of the E-Module

UNIT 1
PAST CONTINUOUS TENSE

Present: I play, I am playing, I have played

Past: I played, I was playing, I had played

Future: I will play, I will be playing, I will have played

Learning Objectives

- The definition and structure of the Past Continuous Tense
- The affirmative, negative, and interrogative forms of the Past Continuous Tense
- The usages of the Past Continuous Tense

Figure 4.11. Front Page of a Unit

Past Continuous Timeline

past XXXXX now future

She was listening to music

www.english-learn-online.com

➤ 1.3 General Formula

Affirmative form: Subject + was/were + verb-ing

Ex: I was chasing my cat around the house.

Negative form: Subject + was/were + not + verb-ing

Ex: We weren't listening to the presenter.

Interrogative form: Was/Were + subject + verb-ing?

Ex: Was she just arguing with the lecturer?

3

The chef **was** busy **cooking** in the kitchen while the waiters **were** **serving** the delicious dishes to the eagerly waiting customers in the restaurant.

Ann: How did your brother break his arm?

Ben: He slipped on the ice while he **was** **crossing** the street in front of our house.

The city **was** **buzzing** with excitement as the parade **was** **making** its way through the streets.

Spectators lined the sidewalks and **were** **waving** flags and **cheering** as colorful floats **were** **passing** by. Children **were** **clapping** and **dancing** with joy while parents were capturing the vibrant scene with their cameras.

5

Figure 4.12. Text-Based Material Explanation

➤ 1.5 Exercise

To test your comprehension regarding the materials, please do the following exercise of "Past Continuous Tense":

Quizizz

Past Continuous Tense

Created by: Intermediate Structure

30 questions

Play now

➤ 1.6 Summary

Function

Past Continuous Tense is a valuable tool for describing ongoing activities that were happening in the past.

Formula

Subject + **was/were** + verb-ing + ...

6

Figure 4.13. Interactive Quiz Section

The complete e-module is made available online at flipbook-maker platform Publuu under the title "English Intermediate Structure" ensuring accessibility for both students and lecturers at any time for their use.

4.3.1 Validation Process

Following the completion of the interactive e-module, a validation process was conducted to assess its viability prior to entering the trial phase. Two experienced lecturers, serving as validators—one specializing in material expertise and the other in media—were chosen for this evaluation. Their assessments were structured using a scoring scale ranging from 1, signifying poor or inappropriate, to 4, indicating excellent or appropriate. The result of validation by the material expert is outlined in the figure below:

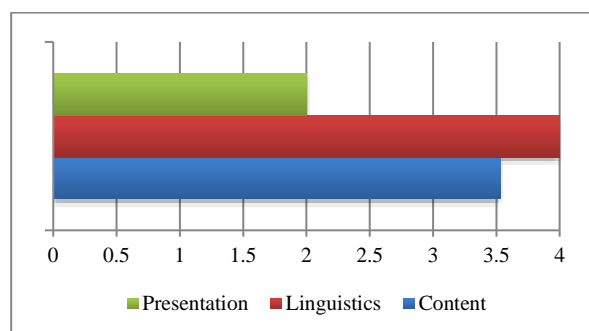


Figure 4.14. Graphic of Validation by Material Expert

As can be seen from Figure 4.14, there are three aspects in the material validation; Content, Linguistics, and Presentation. The 'content' aspect of the e-module got 3.53 (very valid), while the 'linguistics' aspect got 4.00 (very valid) and the 'presentation' aspect got 3.67 (very valid). The final mean score of validation results by the material expert is 3.73, which can be interpreted as *very valid* according to validity criteria by Sugiyono (2016). That means the material within the e-module exhibits a robust level of validity, demonstrating its effectiveness and appropriateness for educational purposes. The next validation is by the media expert. The result of this validation is shown in Figure 16 below:

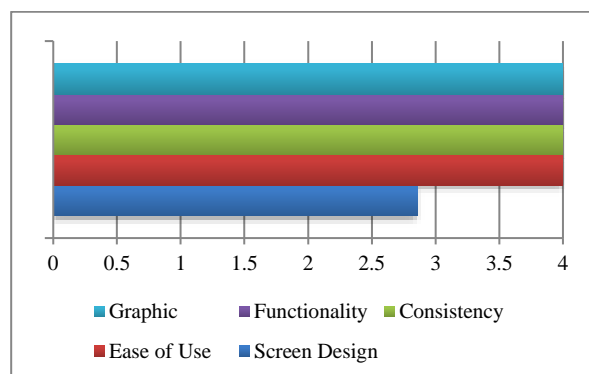


Figure 4.15. Graphic of Validation by Media Expert

As shown in the figure 4.15, validation by the media expert consists of five aspects; screen design, ease of use, consistency, functionality, and graphic. The aspect of 'screen design' received a score of 2.86 (valid), while the other four aspects received the highest score of 4 (very valid). As a whole, the mean score of the validation is 3.77, classified as *very valid*. That means the e-module possesses a robust level of validity in its media components, affirming its reliability and effectiveness as an educational tool for both students and educators.

Therefore, the combined evaluations from both the material expert and the media expert on the developed e-module are presented below

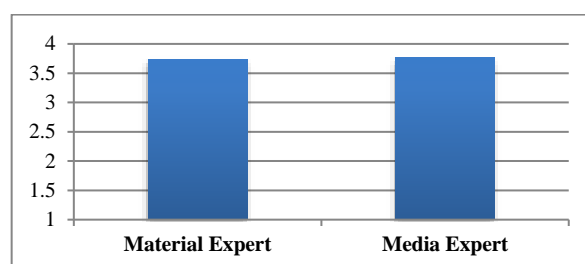


Figure 4.16. Graphic of E-Module Validation

Having obtained an average validation score of 3.73 from the material expert and 3.77 from the media expert, the resulting combined average score stands at 3.75, signifying a *very valid* assessment. These findings lead to the conclusion that the developed e-module possesses excellent quality in both its content and media components. In short, the e-module is well-suited for utilization in the learning process during the implementation phase.

4.4 Implementation Phase

The final product of this interactive e-module was then integrated into Intermediate Structure Course as an additional learning resource. It was introduced to the third semester students of English Department at Universitas Riau during face-to-face sessions but completed outside the classroom times. These students were tasked with completing an evaluation survey regarding the e-module, assessing it based on two key aspects: user-friendliness (5 items) and attractiveness (5 items). This trial took place from September 1 to September 3, 2023, involving a total of 42 students. The results of the student assessment of the e-module are as follows:

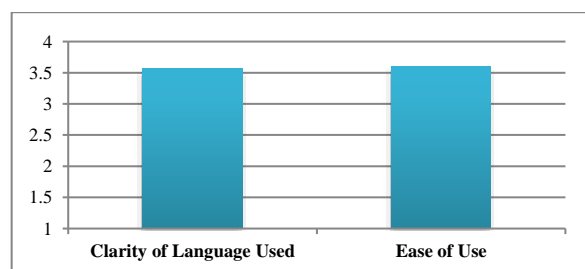


Figure 4.17. Graphic of User-friendliness Aspect

In Figure 4.17, it can be observed that the rating for the 'Clarity of language used' indicator is 3.57 (very good), while the rating for the 'Ease of use' indicator stands at 3.60 (very good). In summary, the average score for the user-friendliness aspect of the e-module is 3.58, which can be aptly characterized as *very good*. Meanwhile, for the aspect of attractiveness of the e-module according to the students, the result is displayed below:

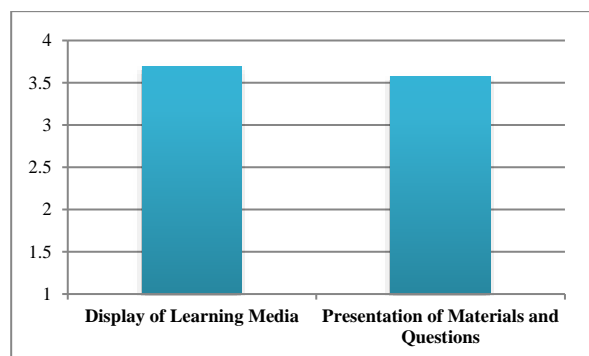


Figure 4.18. Graphic of Attractiveness Aspect

According to Figure 4.18, the 'Display of learning media' indicator achieved a score of 3.69 (very good) whereas the 'Presentation of materials and questions in learning media' obtained a score of 3.57 (very good). Thus, the overall average score for the attractiveness aspect of the e-module stands at 3.63, which can be described as *very good*.

As a result, the collective evaluation derived from student responses regarding the e-module's appeal and user-friendliness as a learning tool is presented as follows:

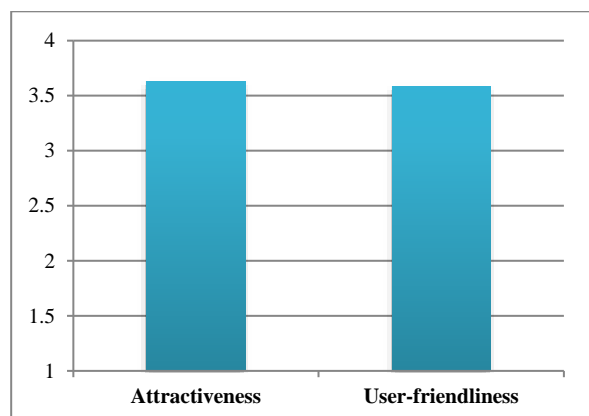


Figure 20. Students Assessment of the E-Module

As depicted in Figure 20, the mean score for the student evaluation of the e-module's attractiveness aspect is 3.63 while the user-friendliness aspect is rated at 3.58. Calculated together, the average score is 3.60, which can be interpreted as *very good*. The following are some feedbacks from students after using the e-module:

The E-Module is very easy to understand. Nowadays, learning without engaging and appealing materials can make us, students, feel bored, and sometimes, what we

learn doesn't seem to gain any results. But, in this e-module, the lessons become more interesting because there are so many interactive media features. I personally love the concept. Hopefully, with this, students can better understand and find learning easier in their lives. – F.R., online interview, 23 October 2023

Excerpt 1

This module provides flexibility for students to study at their own pace. I feel more engaged in the learning process. – M.D.S., online interview, 23 October 2023

Excerpt 2

In my opinion, this interactive learning media is very suitable because it involves students to a high degree, allowing us to be more active in our learning. The use of multimedia such as videos and interesting audio materials makes it much easier for us to understand as students. – M.K.H., online interview, 23 October 2023

Excerpt 3

These feedbacks from students further reinforce this assessment, highlighting the e-module's effectiveness in enhancing engagement, ease of understanding, and active learning. Overall, it is evident that the developed e-module serves as an excellent and effective medium for studying Intermediate Structure as it provides students with a valuable and enjoyable learning experience.

5. Discussion

In the rapidly evolving landscape of 21st-century education, there's an increasing recognition of the need for innovative and dynamic learning resources (Malik, 2018; Dakhi et al., 2020). As mentioned by Evans (2001), traditional methods of instruction, which were mostly reliant on textbooks and lecture-based approaches, are gradually losing place to more interactive and technology-driven approaches (Thu, 2020). The successful validation of our e-module demonstrates its capacity to align with the evolving demands of 21st-century learning. By offering a variety of multimedia elements, it can empower students to engage with content in ways that resonate with modern learning trends (Bezemer & Kress, 2015; Yunansah et al., 2022).

The transition from traditional teaching methods to innovative digital learning resources has been a topic of considerable discussion and research in the field of education. The recognition of this shift is not only pertinent but also imperative in light of the rapid advancements in technology and evolving learning needs of students (Harasim, 2000; Khan et al., 2017). As emphasized by Wicaksono et al., (2001), the conventional reliance on textbooks and lecture-based approaches no longer suffices to meet the diverse and dynamic demands of today's learners. Modern learners seek interactive and engaging learning experiences; therefore, this multimodal e-module can cater to the diverse needs and preferences of English learners.

One of the notable advantages of a multimodal e-module lies in its ability to address the diverse learning needs and preferences of students (Kalogeras, 2014; Yunansah et al., 2022). As maintained by Loo (2004), students are not uniform. They possess distinct strengths and inclinations when it comes to absorbing information (Cabual, 2021). Some may excel in visual learning, benefiting from images and diagrams, while others grasp concepts better through auditory means (Tuan et al., 2005; Zacharis, 2011). Here, the e-module's multifaceted nature extends learning beyond conventional text-based formats (Nuryani et al., 2019). While text remains an essential component, the integration of visuals, audio, and interactive elements enriches the overall learning experience (Chen et al., 2019). Visual aids, such as graphics, images, and diagrams, contribute to better concept comprehension and retention, particularly benefiting visual learners (Lee et al., 2015; Magana et al., 2019). Simultaneously, audio components, including narration and instructional guidance, enhance accessibility for auditory learners (Coombs, 2010). Additionally, the interactive elements, like quizzes, transforms passive learning into an active one, which also stimulates critical thinking and problem-solving skills (Snyder & Snyder, 2008; Ridho et al., 2021; Damayanti et al., 2022; Febliza et al., 2023).

Moreover, the flexibility of the e-module transcends physical constraints. It can be accessed at any time and from anywhere (Saiyad et al., 2020), accommodating the schedules and learning preferences of today's digitally connected students (Beatty, 2019). This accessibility ensures that students can revisit and reinforce their understanding of the material at their own pace, promoting self-directed learning (Al Fajri, 2020; Sahidah & Kirana, 2021).

Beyond accommodating diverse learning styles, the multimodal e-module also offers other benefits. It enhances motivation by making learning more engaging and enjoyable (Bao, 2017; Girón-García & Gargallo-Camarillas, 2020). The inclusion of interactive elements, gamification features, and multimedia content captivates students' attention and increases their interest and intrinsic motivation to learn (Thompson & McIlroy, 2019). This not only helps to improve comprehension but also fosters a deeper level of engagement (Elshareif & Mohamed, 2021), which causes this e-module to be an effective learning resource. Also, the interactive elements, such as quizzes, provide immediate feedback to students. This instant feedback is invaluable in helping students identify their strengths and weaknesses (Gamage et al., 2019). As claimed by Mutch (2003), feedback is of paramount importance to learners as it offers clarity on what has been mastered and what requires further attention. Thus, students can pinpoint specific concepts that require further attention and revisit them as needed. As an engaging and interactive learning resource, the multimodal e-module that the

researchers have developed foster learners' intrinsic motivation and therefore also contribute to the growing body of research that emphasize the importance of intrinsic motivation in learning. The results of this study can be interpreted in several points. First, the validation process suggests that the effectiveness of this e-module meets the educational demands in the 21st century. In addition, the positive responses obtained from the learners indicates that the e-module enhances learners' motivation and engagement. Furthermore, the flexibility of learning using the e-module is in line with the needs of digital learners.

Compared to the previous studies, this research on developing multimodal e-module has proven to be consistent as it also supports the transition of learning modes from traditional methods to interactive and technology-assisted approaches. Moreover, the findings in this research give another emphasis of multimedia as essential elements in contemporary learning environments. In other words, this study contributes to the growing body of literature that promotes the integration of technology in meeting the learners' expectations of the 21st century education.

While this study provides insightful contribution to the field of English language education, it acknowledges potential limitation of the participants. The participants' external factors which include their individual differences in perceiving the effectiveness of the e-module might have influenced the findings of this study. Besides, this study also lacked in exploring more diverse participants to enhance the generalization of the findings.

Suggestions for future research include the long-term impact of e-module and comparison with the utilization of traditional teaching methods. Based on the findings obtained from this research, the next research studies could explore the potential impact of multimodal e-modules on learning outcomes in a long period of time. In addition, it would be interesting to see the broader effectiveness of digital learning resources by conducting comparative studies across different settings.

The practical implications of this study highlight the needs for educators and institutions to keep creating innovation in learning, particularly in providing interactive multimodal learning resources. Educators can utilize the multimodal e-module to cater the needs of diverse learners and enhance student engagement in learning. Similarly, the institutions can consider integrating innovative multimodal resources into their curriculum and make good adjustments following the evolving educational trends.

To sum up, the validation of the multimodal e-module signifies a pivotal step toward enhancing the effectiveness and relevance of education in the 21st century. Its capacity to support diverse learning needs

and preferences, utilization of various forms of content presentation, and intrinsic advantages, such as improved comprehension and heightened motivation, make it a beneficial tool for modern educators and students. As the educational landscape continues to evolve, the multimodal e-module stands as a testament to the adaptability and dynamism of contemporary learning resources.

6. Conclusions

This research produces an innovative e-module designed for the Intermediate English Structure course at Universitas Riau, focusing on multimodal text. Through validation by material and media experts, the e-module emerges as a valid and fitting digital learning tool for both students and educators. This successful validation indicates a noteworthy advancement in education, highlighting the adaptability and dynamism of the multimodal e-module. The study implies that the e-module could contribute to the ongoing transformation of education by helping to increase the effectiveness of learning processes in line with the digital and multimedia emphasis of the 21st century education. However, the researchers acknowledge some limitations, particularly the absence of data from the evaluation phase. Despite this constraint, the study suggests that, when implemented and evaluated in authentic classrooms, the multimodal e-module could not only improve learning experiences but also serve as a model for similar resources. This marks a crucial step toward contemporary education, positioning the multimodal e-module as a dynamic tool capable of meeting evolving educational needs. Thus, recommendations for future research include conducting in-depth evaluations in actual classroom environments. This will provide valuable insights into the practical impact of the multimodal e-module on student learning outcomes and instructional practices.

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