

## **CHAPTER IV**

### **RESULT AND DISCUSSION**

#### **4.1 Result**

The development of this product was carried out using a Research and Development (R&D) approach with the ADDIE model, which consists of five stages: analysis, design, development, implementation, and evaluation. This research was conducted in collaboration with Rima Frida, who was involved in creating the game design. All ADDIE stages were carried out to ensure the development of the memory matching game to assist vocabulary learning, named “LexiFun,” was successfully realized. The resulting product was developed as a learning medium or tool that integrates various forms of vocabulary exercises into a single application.

The first stage of this product development is the analysis that discusses the results of identifying the needs and conditions of the students. Next, the design stage explains the process of designing the learning structure and game concept. The development stage contains the product development process supported by expert validation, while the implementation stage provides the results of game trials to the students. The final stage of this product development is evaluation, where improvements are made to the product based on the results obtained from the implementation.

The need for this game was identified through the results of this first stage, which involved an analysis showing that students found several selected vocabulary topics quite difficult to understand and were interested in digital learning media to support the learning process. Based on these findings, the initial design of LexiFun was created, which includes the game concept, flow, and material, as well as selected visual elements to serve as a guide for product development. The development stage in this study then produced an educational game that combines English vocabulary materials with interactive play activities. Validation results indicated that LexiFun is feasible to use with some feedback and suggestions related to features and materials. Overall, the target users felt that this

game was engaging to play and could serve as an additional learning tool. Therefore, in this chapter, the researcher will explain in detail each step taken in creating the game “LexiFun” for the material section.

#### 4.1.1 Analysis

The analysis stage is the initial stage in the development of learning media, which aims to identify user needs as well as the existing learning conditions. At this stage, several analyses are conducted, namely vocabulary assessment, user and learning needs analysis, and content and media analysis. The results of this analysis stage serve as the basis for determining the direction of the development of learning media that is appropriate to the needs of students.

##### 4.1.1.1 Vocabulary Level Assessment

At this initial analysis stage, the assessment of vocabulary proficiency is conducted to determine the vocabulary level of second-semester students in the Applied Foreign Languages program at Diponegoro University, classes A and B. This assessment aims to identify the students' vocabulary mastery level and to observe the gap between the existing ability and the expected level. The instrument used is a vocabulary test through a website (<https://www.oxfordonlineenglish.com/english-level-test/vocabulary>), which focuses on understanding the meaning and use of words in a sentence. The test consists of 40 vocabulary questions that directly provide results in the form of CEFR levels.

Pilih level setelah mengerjakan Placement Test (sesuai dengan hasil yang telah diupload)  
58 responses

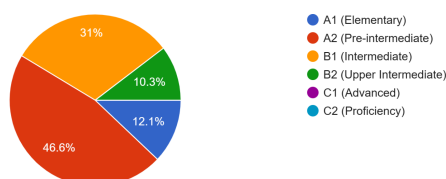


Figure 4.1 Assessment Result

The assessment was conducted on 63 people, but five were unable to fill out the Google Form link, so the assessment results were sent manually via private chat. Based on the assessment results, out of 63 students, 27 students were at level A2 and eight were at level A1. The assessment results show that most students remain at a basic level, which, according to the Council of Europe (2021), means they can produce everyday expressions to deal with everyday situations. Because the majority of students are at level A2 and even some are still at A1, this creates a gap between the students' abilities and the curriculum competence standards they are supposed to achieve, which is at level B1. This field reality becomes one of the foundations in developing LexiFun as a learning tool for language skills, especially vocabulary skills.

#### 4.1.1.2 User and Learning Needs Analysis

To identify the difficulties that students faced in learning different vocabulary topics, questionnaires were given to participants during the user analysis phase. These questionnaires contained statements about students' problems with word usage. Answers to the statements in Indonesian were measured using a five-point scale, ranging from strongly agree, agree, neutral, disagree, and strongly disagree. The questionnaire was completed by all of 27 students at the A2 level. As seen in Table 4.1, which displays the overall results, the researchers performed legitimate data collection via the questionnaire.

Table 4.1 User Needs Questionnaire Result

<b>Question in English</b>	<b>Average Score</b>	<b>Category</b>
I often feel confused about choosing the right conjunction to connect sentences (Example: 'Although' vs 'However') as well as the use of prepositions that follow certain verbs (Example: 'Apologize to' vs 'Apologize for').	68,89%	Agree
I often feel confused distinguishing the use of the word quantity (Quantifiers such as: Few, Little, Several) in a sentence.	65,93%	Agree
I find it difficult to distinguish the functions	63,70%	Agree

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of auxiliary verbs (Modals) such as 'Might', 'Should', 'Ought to' and essential verbs in college assignment instructions.

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The three topics in the statement above originate from preliminary needs and literature review, which were then formulated into a questionnaire to serve as a tool to confirm users' needs regarding these topics. The results of the questionnaire in the table overall show that students still experience difficulties in these three topics. Out of 27 respondents, 15 stated difficulty in understanding and using conjunctions and prepositions in sentences. Thirteen respondents expressed confusion when distinguishing the use of quantifiers in various situations, and 15 students also experienced difficulties in using modal auxiliary verbs.

In line with user analysis, learning need analysis is also conducted using the same questionnaire to identify respondents' learning needs and preferences. In this analysis, the focus is more on statements related to learning aspects. Table 4.2 shows the data obtained for the learning need analysis.

Table 4.2 Learning Needs Questionnaire Result

<b>Question in English</b>	<b>Average Score</b>	<b>Category</b>
I am more motivated to learn English independently if the material is packaged in the form of a game rather than reading a textbook.	79,26%	Agree
I feel the need for an additional application that specifically focuses on vocabulary development to support my college studies.	83,70%	Strongly Agree

Based on the questionnaire result, 20 of 27 students prefer learning through game-based media over traditional methods like reading books, and 23 respondents mentioned a preference for applications that focus only on developing vocabulary. These findings show that students require learning resources that are more interactive, interesting, and tailored to their individual learning styles, in addition to increasing their vocabulary.

#### 4.1.1.3 Content and Media Analysis

Content and media analysis was done to identify the learning materials and the types of media that are most appropriate for students based on the findings of earlier surveys. At this stage, the researcher examines the types of vocabulary that are most helpful for students' needs, as well as the forms of exercises that are helpful in helping students comprehend and utilize vocabulary in context. Based on data from the user and learning analysis stage, respondents experienced difficulties in understanding and using some vocabulary topics within a sentence context. In terms of learning preferences, it was shown that learners chose game-based learning over traditional media, such as books, to acquire vocabulary skills so that learning would become more interactive. The results of these findings serve as an initial step in determining the development of appropriate learning materials and media.

The three selected subject topics are adjusted based on their role in helping learners understand the relationships between sentences, the concept of quantity, and the function of modal words in forming meaning in a sentence. This selection is also supported by questionnaire data related to respondents' difficulties or confusion regarding the three topics for which the material will be developed. To support material development, several game modes are presented in Table 4.3, which shows survey results related to vocabulary practice needs.

Table 4.3 Content Analysis Questionnaire Result

<b>Question in English</b>	<b>Average Score</b>	<b>Category</b>
In the Memory Matching game, I feel that the Translation mode (English - Indonesian) is very helpful for the memorization process in the early stages.	80%	Strongly Agree
Looking for synonyms in the game will be very helpful for me to expand the variety of words so I don't keep repeating the same words.	84,44%	Strongly Agree
Blank Sentence Mode (filling in the gaps in a sentence) is the best way for me to understand how a word is used in reality.	78,52%	Agree

Each mode presented in the game supports learning experiences in various aspects of understanding. The questionnaire results in the table above state that 21 out of 27 students rated the translation mode as helpful in understanding the meaning of a word, while 22 said that synonym activities help them improve their vocabulary understanding, and 20 agree that sentence completion tasks help them learn how to use vocabulary in context. These results suggest that students need a range of exercise formats that address contextual use, word relationships, and meaning comprehension. As a result, these materials and exercise formats are combined into an interactive, game-based learning medium to better aid in vocabulary learning and meet the needs of students.

#### **4.1.2 Design**

The design stage is the stage of creating learning materials based on the data gathered during the earlier analysis phase. The game idea is now planned, the content is organized, and the learning flow that will be used in the media is created. The development of a storyboard to visually depict the game's look and feel before any additional work is done is also included in this phase.

##### **4.1.2.1 Learning Objectives**

The learning objectives for this media were established based on the results of the analysis of students' needs, which revealed difficulties in understanding and applying vocabulary in context. In general, this media aims to assist students in grasping functional vocabulary, particularly in recognizing the meaning of words and their use in sentences. In addition, the learning objectives also include students' ability to understand the connection between words, the concept of quantity, and the role of auxiliary verbs in forming sentence meaning. This aligns with the results from the analysis findings which showed that students experienced difficulties not only in understanding word meanings but also in applying them correctly in the context of use.

Furthermore, learning objectives are also designed by taking into account students' learning preferences based on the results of the questionnaire. In the

questionnaire results, the majority of A2-level students agreed that they need additional learning media for interactive vocabulary acquisition and are interested in games that combine education. Based on these findings, the developed media is intended as a supportive learning medium that is more interactive through various forms of exercises.

Moreover, the game that is developed is beneficial not only for vocabulary introduction but can also be utilized for familiarization and supporting the gradual process of vocabulary acquisition. This goal was chosen to focus on initial understanding as well as final results. With this, the learning objective is not centered on maximum vocabulary mastery but rather on providing support for vocabulary acquisition to enhance language ability through engaging media according to the students' needs.

#### **4.1.2.2 Game Concept**

The concept of this product functions as an educational game that combines a memory matching card game with functional vocabulary material. LexiFun, as an educational game, aims to help students learn vocabulary through a game, particularly for A2-level learners. The name LexiFun itself is closely related to learning, as it comes from the words 'lexicon,' which means a collection of lexemes in a language, and 'fun,' which means enjoyment. From this name, LexiFun is portrayed as a vocabulary learning medium that is fun to play for users.

In general, the game concept presented in this game includes levels, time duration, a locking system, and word banks as a helper dictionary. All of these elements serve as game mechanisms that assist in the learning process. The three modes offered, namely translation, synonym, and blank sentence, follow a scaffolding method aimed at vocabulary learning with gradual assistance. The locking system applies to the mode and level choices played as a challenge for students in acquiring vocabulary sequentially. Thus, this concept combines both entertainment-oriented and learning-oriented aspects.

The theme options that can be played are only in translation mode, while

the other two modes are still locked, as are the levels within them. Each mode has three levels, with level 1 being the only one that can be played first. Translation mode serves as a foundation before the other modes are unlocked, allowing learners to first understand the meaning of vocabulary before moving to other modes. The locking of modes and levels is designed to build directed or progressive learning habits. This concept supports the connection between game progression and learning progression in a single learning medium.

### **4.1.3 Development**

The development stage is the fourth stage in the ADDIE model after the product design process is carried out. At this stage, the product begins to take shape into a usable game. The material that has been designed is then integrated into the educational game and adapted into activities according to the product concept. The realization of the product is followed by validation by an expert who provides feedback and suggestions for the developed product before it is used by students.

#### **4.1.3.1 Development Process**

The game development process prioritizes the arrangement of learning materials among the pre-designed modes. Vocabulary lists are developed in translation, synonym, and blank-sentence modes. The card game for memory matching is applied in the translation and synonym modes, requiring users to match words with the available cards. Meanwhile, in the blank sentence mode, there is a sentence with one missing word aimed at having learners practice using the acquired vocabulary in context. The existing modes aim to ensure that the developed materials can be understood both in meaning and in their proper contextual usage.

All subsequent elements and materials are organized systematically so that they can become suitable learning media. The creation of storyboards using the Canva design platform supports this process as a guide in arranging the flow of the game as well as the presentation of all materials. The storyboard created helps

organize the layout of all elements, as well as the vocabulary list and its relation to the game mechanics. Thus, the development process of LexiFun can be carried out more directionally.



Figure 4.2 Application Logo

#### 4.1.3.2 Vocabulary Content Organization

The selection of vocabulary lists is the core of the content in LexiFun. Research reveals that the topics of conjunctions and prepositions, quantifiers, and modal auxiliary verbs are vocabulary topics that often cause difficulties for learners, leading to common errors in their use (Lee, 2021; Abdalla, 2025). To ensure the suitability of the chosen topics for A2 learners, vocabulary items were selected using the Oxford 3000 list, which includes CEFR level information for each word. For example, in the topic of conjunctions and prepositions, A2-level vocabulary includes words like "against," "outside," and "past," while B1-level vocabulary includes "throughout," "unless," and "despite." Similarly, the topics of quantifiers and modal auxiliary verbs mostly contain A2-level vocabulary, with some A1 items included for review and some B1 items introduced as target vocabulary.

The chosen vocabulary list is adjusted based on its relevance to the three functional vocabulary topics, not on subjective difficulty. In this way, each word displayed is relevant to the functional vocabulary that is the focus of this learning medium. Each topic has 19 English vocabulary words or phrases, followed by a list of those words or phrases in Indonesian and synonyms, with the same amount. The total vocabulary list from the three topics on LexiFun is 171 words or phrases. There are three learning modes for any topic, namely translation,

synonym, and blank sentence. The translation mode focuses on the meaning of a word, the synonym mode helps learners understand the relationship between words, and the blank sentence mode trains the use of vocabulary in sentences. The translation and synonym modes have three levels, which differ only in the number of cards and time limit.

As a representation of the material used, the following is a list of vocabulary in the topic of conjunctions and prepositions.

Table 4.4 Conjunctions and Prepositions Vocabulary List

<b>Word</b>	<b>Meaning</b>	<b>Synonym</b>
Although	Meskipun	Even though
Outside	Di luar	Outdoors
Past	Masa lalu	After
Unless	Kecuali jika	Except if
While	Sementara	When
Against	Melawan	Opposed to
According to	Menurut	Based on
Between	Di antara	In between
After	Setelah	Following
Despite	Meskipun	In spite of
Therefore	Oleh karena itu	Thus
Instead of	Alih-alih	Rather than
Among	Di antara	Amid
Throughout	Sepanjang	All through
Towards	Menuju	To
Within	Di dalam	Inside
Except	Kecuali	Apart from
Since	Karena	Because
Anyway	Bagaimanapun	Though

Based on the table above, it can be seen that the choice of vocabulary represents the topic of conjunctions and prepositions. The selection of all these vocabularies supports the established learning topic and is integrated into game activities in various modes.

Table 4.5 Quantifiers Vocabulary List

<b>Word</b>	<b>Meaning</b>	<b>Synonym</b>
Several	Beberapa	A few
Plenty	Banyak	A lot of
Each	Setiap	Every
Little	Sedikit	Not much
Any	Apa pun	One or more
More	Lebih banyak	Extra
Many	Banyak	Numerous
Both	Keduanya	The two
Few	Sedikit	Not many
All	Semua	Everything
Every	Setiap	Each
Much	Banyak	A lot of
None	Tidak ada	Not any
Neither	Tidak satu pun	Not either
Either	Salah satu	One of two
Half	Setengah	50 percent
Some	Beberapa	Several
Less	Lebih sedikit	Not as much
Enough	Cukup	Sufficient

In table 4.5, all lists of vocabulary regarding quantifiers are shown, starting from the reluctant translation of their synonyms. The vocabulary represents the function of quantifiers as an understanding of the concept of amount and quantity.

Table 4.6 Modal Auxiliary Verbs Vocabulary List

<b>Word</b>	<b>Meaning</b>	<b>Synonym</b>
Would	Mau	Want
Shall not	Tidak boleh	Prohibited
Would not	Tidak mau	Unwilling
Shall	Haruskah	Suggestion
Will not	Tidak akan	Not going to
Will	Akan	Shall
May	Boleh	Might
Could not	Tidak bisa	Not able
May not	Tidak boleh	Can not
Could	Mungkin	Able to

Need	Perlu	Necessary
Can not	Tidak bisa	Unable
Ought to	Seharusnya	Should
Used to	Dulu	Previously
Might not	Mungkin tidak	Probably not
Must not	Tidak boleh	Forbidden
Might	Mungkin	Perhaps
Can	Bisa	Could
Must	Harus	Have to

The table shows that the vocabulary on the theme of auxiliary and modal verbs is presented to help students understand the function of auxiliary verbs in forming sentence meaning. The table shows that the vocabulary on the theme of auxiliary and modal verbs is presented to help students understand the function of auxiliary verbs in forming sentence meaning. The presentation of this vocabulary list aims for learners to better understand functional vocabulary in various contexts.

The vocabulary table that has been presented serves as a key in translation and synonym modes. The blank sentence mode itself uses English vocabulary, which is implemented in gap-filling sentence exercises. Learning activities in this mode are designed for learners to understand the use of a vocabulary word in a sentence. The image below is an example of a question in blank sentence mode.

No.	English	Question & Option
1.	Although	____ I was tired, I still went hiking with my friends last weekend. a. <b>Although</b> b. Despite c. Since
2.	Outside	We decided to sit ____ the café because the weather was nice. a. <b>Outside</b> b. Within c. Among
3.	Past	We walked ____ the museum on our way to the beach. a. <b>Past</b> b. Between c. Towards

Figure 4.3 Example of Blank Sentence Mode

Based on the CEFR Companion Volume, there are several skills that describe A2 level learners' competency. At this level, A2 learners can provide descriptions of events and activities, and explain plans and habits. In addition,

learners can also obtain information related to traveling or using public transportation. Therefore, LexiFun chooses the themes of habits, events, and tourism as contexts for the questions in the bank sentence mode. The purpose of choosing these themes is to enhance learners' understanding of vocabulary in real-life contexts, allowing them to become familiar with those situations.

In this mode, there are 19 vocabulary words implemented in the form of a close sentence with selected themes. The list of vocabulary used includes words that appear in translation and synonym mode or original vocabulary in English, not synonyms or vocabulary in Indonesian. One vocabulary word is applied to one specific sentence, and there is no sentence randomization.

#### **4.1.3.3 Storyboard Development**

A storyboard is created as a visualization of the flow and sequence of activities in LexiFun. In the storyboard, there is a display structure starting from the sequence of screens and topic choices to the initial images of all game modes. The existence of a storyboard makes the navigation and transitions of the game more systematic. To provide a clearer picture of the storyboard that has been compiled, the following presents some views of LexiFun learning media that have been realized using a design platform. The storyboard that was designed was then further developed through collaboration, where the researcher is responsible for arranging the flow and content in the game, the illustrator develops the required visual elements, and the developer implements it into a form of game that can be played by users.

The first page of the game will ask the player to log in using a Google account to access the main menu. The account used to log in to LexiFun serves as a track checkpoint for each unlocked level, and no other user data is collected by the game. After successfully logging in with a Google account, the player will see the main menu display of LexiFun.

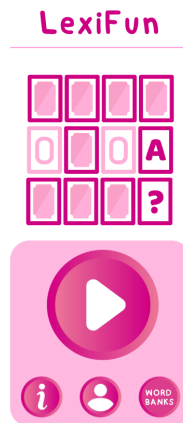


Figure 4.4 Main Page of LexiFun

On this page, users are given early access to start the game. In addition to the 'play button' for starting the game and the 'profile' icon for accessing account information, there are two other features to help students understand the LexiFun game.

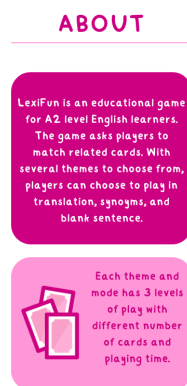


Figure 4.5 Game Information



Figure 4.6 Word Banks Option



Figure 4.7 Word Banks Page

The three images above show the page display for the 'about' icon, which contains information about the LexiFun game, so students can get a general overview of this game. The 'word banks' icon contains a list of vocabulary used in this game to help students understand the meaning of the vocabulary used while playing the card game. Students can choose which topic they want to learn first according to the displayed images; after choosing, a list of vocabulary will appear,

starting with the English vocabulary, the meaning of the vocabulary in Indonesian, and also its synonyms.

The core of the game begins after the player presses the 'play button,' where topic choices are presented again, as shown in Figure 4.6, and the player is free to choose which topic they want to play first. The selection of a topic is followed by the selection of the game mode and also the game level.



Figure 4.8 Modes Option

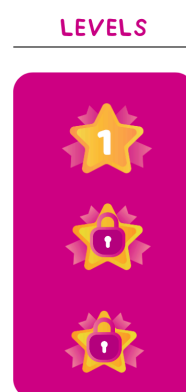


Figure 4.9 Game Levels

The image above shows the page for mode selection; however, at the initial stage, only the translation mode can be accessed, while the other modes remain locked until the user completes all levels in that mode. This locking system is designed as part of the game elements as well as to regulate the learning flow gradually. Through this approach, students are guided to understand the meaning of vocabulary before moving on to more complex stages.

Thus, the sequence of modes in the game reflects the application of the scaffolding method, where learning starts from simpler activities with greater support and gradually leads to activities that require independence in using vocabulary. In addition, each mode consists of several levels that must be completed sequentially before users can access the next level.



Figure 4.10 First Level

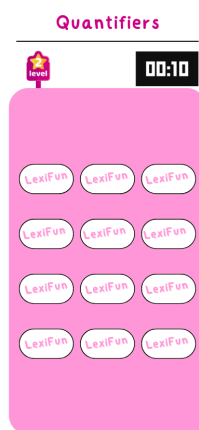


Figure 4.11 Second Level

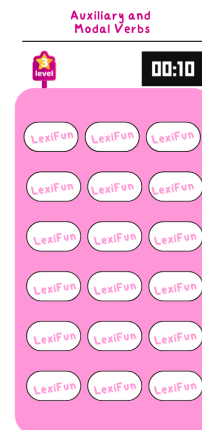


Figure 4.12 Third Level

Based on the three images above, the difference between levels lies in the number of items and the time limit, thus providing challenges gradually without significantly increasing the difficulty level of the vocabulary. Level 1 consists of 8 cards with a total completion time of 30 seconds. Level 2 has 12 cards with a duration of 45 seconds, and level 3 has a total of 18 cards and a completion time of 60 seconds.

Players can proceed to the next mode if they have completed 3 levels in each mode. The blank sentence mode is the final mode where the gameplay is quite different from the previous modes.

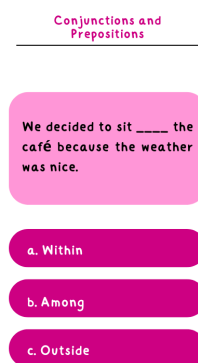


Figure 4.13 Blank Sentence Page



Figure 4.14 Correction Option

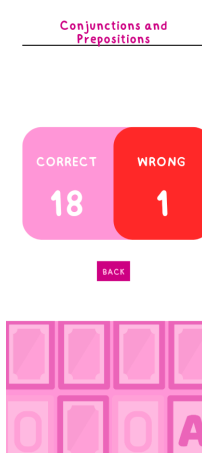


Figure 4.15 Game Result

The blank sentence mode is a model consisting of 19 questions from English vocabulary that have been studied in each topic. In this mode, players must complete the incomplete sentence with a vocabulary word that matches the context of the sentence. If the chosen answer is correct, the option will turn green; conversely, if the chosen answer is wrong, the selected answer will turn red. After all the questions are completed, a score page will appear recording the number of correct answers by the player.

Thus, the storyboard that has been developed not only functions as a visual guide but also as a basis for realizing structured learning media that aligns with learning objectives. Through this process, the material and game flow can be systematically integrated into a complete form of media.

#### **4.1.3.4 Expert Validation**

The initial prototype of the learning media that has been developed then goes through a validation stage by an expert. The validation process was carried out by Naila Rohmah S.Pd., M.Li. as an expert and lecturer who has competence in the field of English language learning and assessing two main aspects, namely media and material. Media validation consisted of five statements covering visual appearance aspects, such as layout, typography, visual elements, color schemes, and display organization that support readability and navigation. Meanwhile, material validation consisted of four statements focusing on material accuracy, content clarity, suitability for the A2 learner level, and language use in the game.

In addition, there were two open-ended questions aimed at obtaining suggestions and recommendations from experts regarding the development of media design and content. Overall, the validation results indicated that the developed media and materials met feasibility criteria, although there were still some inputs that would serve as a basis in the product revision stage.

**FORM OF VALIDATION ON PRODUCT**  
**"VOCABULARY LEARNING GAME: LEXIFUN"**

Validator : *Naila Rohmah, S.Pd., M.Li.*  
 Date of Validation : *7 April 2026*

A. Expert Validation for Media

Table 1. Statement of Expert Validation for Media

No	Questions
1	The layout of the games is well-structured and visually appealing. (Strongly Disagree/Disagree/Netral/Agree/Strongly Agree)
2	The typography (font type, size, and spacing) is clear and easy to read. (Strongly Disagree/Disagree/Netral/Agree/Strongly Agree)
3	The visual elements (graphics and icons) support the understanding of the content. (Strongly Disagree/Disagree/Netral/Agree/Strongly Agree)
4	The color scheme and design aesthetics are appropriate and professional. (Strongly Disagree/Disagree/Netral/Agree/Strongly Agree)
5	The organization of sections enhances readability and navigation. (Strongly Disagree/Disagree/Netral/Agree/Strongly Agree)

Figure 4.16 Media Validation

B. Expert Validation for Material

Table 2. Statement of Expert Validation for Material

No	Questions
1	The materials provided in the games are accurate. (Strongly Disagree/Disagree/Netral/Agree/Strongly Agree)
2	The content is clear and easy to understand. (Strongly Disagree/Disagree/Netral/Agree/Strongly Agree)
3	The material is relevant and applicable for A2 learners for studying vocabulary. (Strongly Disagree/Disagree/Netral/Agree/Strongly Agree)
4	The language used in the game is appropriate and professional. (Strongly Disagree/Disagree/Netral/Agree/Strongly Agree)
5	What suggestions do you have for improving the game's design? (Paragraph) <i>Review program term quantity and measurement atau quantifiers.</i>
6	What recommendations do you have for enhancing the game's content? (Paragraph) <i>Tambahkan word bank dan review keabahi materi, perbaiki di bagian (quantity) and measurement dan auxiliary and modal verb.</i>

Figure 4.17 Material Validation

**SURAT PERNYATAAN VALIDASI**  
**DOSEN PEMBIMBING TUGAS AKHIR**

Saya yang bertanda tangan di bawah ini:

Nama : *Naila Rohmah S.Pd., M.Li.*  
 NIP : *198912262024062001*  
 Prod : *Bahasa Asing Terapan*

Menyatakan bahwa proyek tugas akhir atas nama mahasiswa:

Nama : *Reyna Odilla Henda Cahyono*  
 NIM : *40020522650074*  
 Prod : *Bahasa Asing Terapan*  
 Judul TA : *Developing a Memory Matching Game Application to Support A2-Level English Learners' Vocabulary Learning*

Setelah dilakukan penilaian atas proyek tersebut dapat dinyatakan:

<input type="checkbox"/>	Layak digunakan tanpa revisi
<input checked="" type="checkbox"/>	Layak digunakan dengan revisi sesuai aturan
<input type="checkbox"/>	Tidak layak

Demikian surat validasi ini dibuat agar dapat digunakan sebagaimana mestinya.

Semarang, 21 April 2026  
 Validator



*Naila Rohmah S.Pd., M.Li.*  
 NIP. *198912262024062001*

Catatan:  
 Pengisian kolom diberi tanda (✓)

Figure 4.18 Validation Form

Based on the validation results, in general, the developed learning media is considered in accordance with the purpose of creating the application, which is for vocabulary learning. However, there are several suggestions given by the expert, including improvements in the clarity of themes and recommendations to enhance the game's content.

#### 4.1.3.5 Product Revision

Based on the findings from expert evaluation, various modifications were implemented regarding the characteristics and visual elements of the educational materials. One of the main changes was the replacement of the sound feature with word banks. The earlier audio feature included background music meant for enjoyment; however, experts indicated that this aspect was not very helpful for learning, as it could potentially distract learners'. Therefore, this feature was replaced with word banks, which are more relevant to the learning objectives.

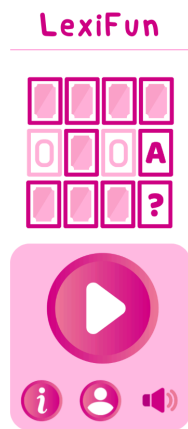


Figure 4.19 Before Revision



Figure 4.20 After Revision

Through word banks, users can understand the meaning of words first before playing the matching game, making the learning process more directed. In addition, the term has been changed from “theme” to “topic” to provide clarity in terminology because the presented material is not based on contextual themes, but rather groupings based on types of functional vocabulary.

Revisions were also carried out to adjust topics and content to align with the functional vocabulary concept. The topic of quantity and measurement was changed to quantifiers to ensure consistency with the category of words that function within sentence structure. In addition, the term ‘auxiliary modal verbs’ was simplified to ‘modal auxiliary verbs’ to follow the convention of terms more frequently used in linguistic research. This change was followed by a review of the vocabulary list so that some less appropriate words were replaced with words

that are more representative and suitable for the intended function. As a representation of material revisions, the table below shows some vocabulary that has undergone changes.

Table 4.7 Revision for Vocabulary

<b>Topic</b>	<b>Before Revision</b>	<b>After Revision</b>
Quantifiers	A bit	Some
Quantifiers	Couple	A few
Quantifiers	Total	All
Modal Auxiliary Verbs	Able	Can
Modal Auxiliary Verbs	Have	Must
Modal Auxiliary Verbs	Allow	May

In general, vocabulary revisions are carried out to ensure that each word used truly corresponds to the category of functional vocabulary as well as its function in constructing meaning within a sentence. Some previous words were considered less representative of the intended function or had meanings that were too contextual; therefore, they were replaced with words that are more general and more appropriate to use in sentence structures.

Moreover, revisions were also made to the vocabulary difficulty level, wherein in the initial stage the vocabulary was dominated by levels A2 and B1 and then adjusted to include levels A1, A2, and B1. The arrangement of vocabulary in this media is not organized linearly based on level but rather integrated into a single learning activity to support the gradual understanding process. In this case, A1 vocabulary serves as reinforcement (review), A2 level as the main focus according to the learner's proficiency level, and B1 level as an introduction to a higher level.

#### **4.1.4 Implementation**

The implementation stage is the stage in which the learning media that has been developed begins to be used by users on a limited scale. At this stage, the main focus is to see how the media can be used by students and what their initial

responses are to using LexiFun. This implementation is not intended to measure effectiveness quantitatively, but rather to obtain an initial picture regarding user understanding and experience.

#### **4.1.4.1 User Testing**

At this stage, the learning media prototype was tested on a limited basis with students. The product trial was conducted twice according to the lecture schedule for second-semester students of Applied Foreign Languages at Universitas Diponegoro. The trial phase was only followed by students who were at level A2 according to the results of the vocabulary assessment. The trial for Class B took place on April 21, 2026, with 10 participants, while for Class A was conducted on April 23, 2026, with 12 participants. A total of 22 students participated in the game trial, which is five fewer than the total number of students at the A2 level because they were unable to attend the trial stage. This activity took place in Room 306 at Diponegoro University, Pleburan Campus.

Before the game began, the researchers introduced themselves and explained the purpose and objectives of this developed learning game experiment. To optimize efficiency, the researcher divided the A2-level students into three groups according to the number of topics available in the game. The first group would play the game with the topic 'Conjunctions and Prepositions', the second group on 'Quantifiers', and the third group on 'Modal Auxiliary Verbs'. Next, the researcher provided a general explanation of the game, including its mode, difficulty level, and duration. In this stage, users were given the opportunity to try the LexiFun game by accessing several main features, such as theme selection, game mode, and available levels.

During the trial process, students were asked to complete several activities in each mode, namely translation, synonym, and blank sentence. The observation showed that most students were able to understand the flow of the game and follow the given instructions while completing activities in each mode without experiencing any significant difficulties. In addition, the implemented level system also helped students to gradually adapt to the exercises presented.

However, at the initial stage of use, some students still need time to fully understand the game instructions, especially during mode transitions where they have to go back to the mode page first to play the newly unlocked mode because previously it mode was locked.

#### 4.1.5 Evaluation

The evaluation stage is carried out to review the quality of learning media based on the results of the implementation that has been carried out. This evaluation focuses on analyzing user feedback as well as planning further development to improve the quality of learning media. Thus, this stage not only looks at the results of use but also serves as a basis for determining the direction of product improvement.

##### 4.1.5.1 User Response

In addition to observing the usage process, this implementation stage also aims to determine students' responses to the developed learning media. At this stage, A2 level students are given a feedback questionnaire so that the researcher can obtain responses to the developed game. The questionnaire is in the form of a Likert scale containing 4 statements related to media design, 4 statements related to game content, 1 statement related to recommending the game, and a question with a short answer about what needs to be developed in the game. As seen in Table 4.8, which displays the overall results, the researchers performed legitimate data collection via the questionnaire.

Table 4.8 User Response

No	Question in English	Average Score	Category
1	Aesthetic appeal and user-friendliness	84.55%	Strongly agree
2	Layout and typography appropriateness	86.36%	Strongly agree
3	Visual elements for content understanding	76.36%	Agree
4	Clarity of vocabulary presentation	83.64%	Strongly agree

5	Relevance of functional vocabulary for A2 level	92.73%	Strongly agree
6	Utility as an instructional learning resource	89.09%	Strongly agree
7	Interactive elements for enhanced learning experience	80.91%	Strongly agree
8	recommendation to use this game for vocabulary learning	83.64%	Strongly agree
9	Alignment with A2 level learners' needs	82.73%	Strongly agree

Based on the results of user responses regarding the material aspect, the majority of users gave positive responses to the learning content presented in LexiFun. A total of 20 users agreed or strongly agreed on three indicators, namely the clarity of vocabulary structure presentation, the relevance of the game in introducing functional vocabulary to support readiness for higher-level learning, and the function of the game as a medium for learning vocabulary. These three indicators suggest that the developed game is able to present material relevant to vocabulary learning needs. LexiFun is also regarded as both game media and a medium for practicing vocabulary independently. Meanwhile, 17 people approved the indicator regarding the suitability of the material for A2-level learners preparing for higher language competencies, which still shows a positive response from the majority of users.

In addition, 18 users expressed interest in recommending LexiFun to other learners who are studying vocabulary. This percentage indicates that the majority of users gave a positive response to the media usage experience and view this game as quite worthy of being recommended as an alternative vocabulary learning medium. Based on the last question in the feedback sheet, several inputs were obtained regarding media development. The researchers categorised the responses from 22 students into four primary categories. The table below is a summary of the input that summarises the respondents' perspectives.

Table 4.9 User Comments

No	Aspects	Responses
1	Game mechanics	As many as 11 users, representing 50% of all users, recommended extending the duration of the timer feature while playing the translation and synonym mode, especially in the level three.
2	Animation on card responsiveness	Some users feel that the card animation when flipping card back and forth is too slow. They consider this quite annoying and time-consuming in the game.
3	Audio	A user suggested adding audio due to the lack of background music in order to enhance the learning experience.
4	Content and technical development	There is a desire to increase the number of vocabulary words as well as the level to add content to the game. In addition, there are some technical issues on certain devices, along with requests for the application to be available on iOS and the provision of additional color options.

The results showed that most suggestions focused on user experience aspects, such as adjusting the timer duration and the flip card speed. There were also some comments related to technical aspects, such as system performance, as well as suggestions for adding vocabulary and game levels. In general, these inputs provide an overview that, in addition to being received positively, shows the developed media still has room for further improvement.

#### 4.1.5.2 Analysis of Feedback

User feedback results show that LexiFun is positively received by A2 level learners as a medium supporting the learning of functional vocabulary. Positive user responses indicate that the combination of materials, game mechanisms, and gradual learning modes is considered quite suitable for learners' needs. The use of translation, synonym, and blank sentence modes also demonstrates the application of scaffolding that helps users learn vocabulary gradually. In addition, positive responses to the material aspect show that the focus on functional vocabulary is considered relevant in supporting the strengthening of vocabulary for A2-level

learners. Not only do they gain generally positive responses, but user feedback also provides information about aspects that can still be improved.

Extending the duration of playtime can help students have more time to complete a level, especially for the third level. For the card flip, speeding up the card flip animation is proposed to improve smoothness and responsiveness. Other inputs, such as the addition of levels and vocabulary, also indicate a need for broader content development. An audio feature was also considered necessary based on one of the player's feedback, but this contradicts the results of expert validation with the aim of maintaining focus while playing, and the feature has already changed to a word bank feature, which is considered more important to increase the user's understanding before playing the game. Furthermore, feedback related to technical issues such as lagging is understood as notes on technical aspects that can still be improved in the next development. This feedback shows that users not only assess the product from its current functionality but also see the potential for long-term development of the media created.

#### **4.1.5.3 Product Improvement**

From the results of the trial phase and following user responses, several improvements are planned as a follow-up to enhance the quality of LexiFun. The main improvements are focused on adjusting the timer duration and card flip speed according to the input from the majority of users. The timer durations for all levels in LexiFun are based on the researcher's assumptions and a comparison with a memory matching game called "Santa Matching Game," which is a game where players match illustrated cards. In the Santa game, a set of 12 cards (or 6 pairs) has a playtime of 30 seconds. Based on this finding, the researchers decided to set the timer for Level 1, which consists of 8 cards, to 30 seconds; Level A2, with 12 cards, can be played for 45 seconds; and Level 3 has a duration of 60 seconds with a total of 18 cards.

The time allotted in LexiFun tends to be longer because it is not a game that matches images with images; therefore, it takes time to contemplate selecting the card with the correct word or phrase. To test whether the levels in LexiFun

were appropriate, user testing was conducted, and feedback regarding the timer emerged. Users experienced difficulty at Level 3 due to insufficient playtime, while there were no reports of difficulty for Levels 1 and 2. Below is an image of one of the aspects that was revised in LexiFun based on the suggestions from trial users, namely the timer in level 3.



Figure 4.21 Timer Before Revision

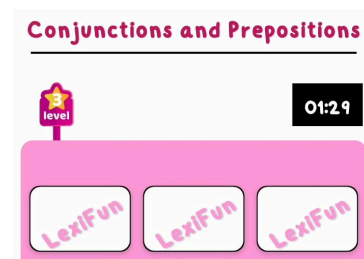


Figure 4.22 Timer After Revision

The time duration for level 3 was initially 60 seconds and was changed to 90 seconds. The decision to increase the timer in level 3 to 90 seconds lies in the middle ground between both the feedback and the expert. This revision aims to reduce difficulty and provide users with enough time to complete the matching activity. Research on memory matching games suggests that the difficulty level of the game should be adjusted to the user's ability so as not to negatively affect the learning experience (Araujo, Gonzalez, & Mendez, 2018).

Further confirmation was carried out with users who provided specific suggestions regarding the timer in the game. Two users were chosen because they gave very specific timer suggestions. The first user requested the timer be changed to 2 minutes, while the second user requested an additional time of about 15–20 seconds. After the timer was revised to 90 seconds based on discussion with the expert, both gave their opinion that the revised result was more in line with their suggestions.

The animation on the flipped cards was also enhanced to improve user comfort while playing. These two aspects are prioritized because they are directly related to the comfort and smoothness of the user learning experience. These adjustments are expected to make the playing activity more balanced between challenge and ease of use. Some user feedback that could not yet be implemented

also became a consideration for further game development. Suggestions for adding vocabulary and game levels are seen as opportunities to expand the scope of learning content in the next version. This development can support more varied exercises and increase the sustainability of media usage. However, this development is positioned as a subsequent plan because it is beyond the scope of product development in this research. Therefore, this feedback becomes part of the product's long-term development plan.

#### **4.2 Discussion**

The results of the initial research analysis at the vocabulary assessment stage showed that the majority of students are still at the basic user level, namely A1 and A2. The competency standard for second-semester students in the Applied Foreign Language department is B1, which signifies an independent user level. This indicates the fact that many students have not yet reached the competency standard expected by the campus. Another challenge identified in this research is the limited learning media specifically for practicing functional vocabulary that suits the learners' needs. Functional vocabulary itself serves as sentence construction, cohesion, and coherence appropriate to B1-level abilities according to the CEFR. LexiFun was developed to meet the need for media as an additional practice tool.

These needs were then accommodated through the development of ADDIE-based products, which allows the design process to be carried out systematically, from need identification to evaluation through expert validation and user responses. Validation results showed that the developed mediums were considered feasible both in terms of content and media, while the revision process reinforced the suitability of the content and learning features in the product. User responses also indicated that the developed product was relevant and received fairly positive feedback. LexiFun is not intended to be the main solution for the instant improvement of A2 students to B1 but rather a supporting tool in the form of media that facilitates the transition from A2 to B1 in the context of introducing functional vocabulary. The focus on functional vocabulary also provides this

product a special position because the material is not only chosen as lexical content but also as an element that supports language use in a more functional context.

LexiFun's design, which combines the memory-matching game mechanism with translation, synonym, and blank sentence modes, demonstrates the application of scaffolding elements in a gradual learning process. The arrangement of activities, from introducing meaning to using vocabulary in sentence contexts, shows a learning sequence that supports the user's understanding development step by step. This approach is relevant to the characteristics of functional vocabulary, whose usage requires not only recognition of word forms but also understanding of their function in constructing meaningful relationships. Game mechanisms such as level progression and locking systems also show the game elements function as part of the learning structure and not only as entertainment. This combination positions the product design not merely as a gaming medium but as a learning medium built with pedagogical considerations.

The findings of this study also indicate a connection with previous research on the potential of games in vocabulary learning. The results of this study are in line with Yudha and Mandasari (2021), which showed that the use of games can support vocabulary learning, as well as research by Agustina, Manihuruk, and Situmeang (2024) and study by Malik Ya Syak, Hasni, and Rahim (2019), which showed that the use of card-based games has value in language learning. This alignment is evident in the user feedback results, which show positive aspects of playing LexiFun. On the other hand, this study presents a different focus through the development of a mobile-based application with an emphasis on functional vocabulary and the use of several gradual learning modes. This difference positions the developed product not only to fill gaps and adapt from previous research but also as a further development of existing approaches.