UI/UX Design for Language Learning Mobile Application Chob Learn Thai Using the Design Thinking Method

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Abstract: Thai language is one of the most difficult languages to learn because the Thai language itself has a variety of consonants, vowels, and tones to determine vocabulary. The problem is people currently have in learning Thai is the lack of knowledge about each consonant, vowels, or tones. So that it makes some people who want to learn Thai feel confused. Therefore, a Thai language learning application design was made which aims to make it easier for people who want to learn Thai language and of course it is more practical because it is in a mobile form that can be accessed anywhere and anytime easily. Design thinking is a method known as a comprehensive thinking process that aims to create a solution. In design thinking are have five stages, namely Empathize, Define, Ideate, Prototype and Test. At the test stage, the method used is Single Ease Question. The Single Ease Question has seven Likert scales where for a value range of 4 – 5.9 it is included in the interpretation quite easily, and in the range of 6 – 6.9 the interpretation is easy and for a value of 7, the interpretation is very easy. The result obtained after testing the prototype to the respondents the value obtained is 6.6 with a minimum value of 6 and a maximum value of 7. Thus, the result of 6.6 are included in the category of being easy to use by users.

Keywords: Design Thinking, Learning Application, Mobile Application, Thai Language, Single Ease Question

INTRODUCTION

Leaning application is an application that have a learning process in them, which is useful for students to gain more knowledge and can develop their learning process (W.E. Putra, I.L. Kusuma 2020).Learning application have various types, one of which is a language learning application, in which the application usually learns language vocabulary from an area or country, which is commonly used to commonly known as a dictionary. In this digital era, of course, this language learning application is very useful for anyone because it can be accessed anywhere and anytime easily. Dictionaries in digital form are certainly more interesting for anyone who wants to learn language, beside that it is easier to find a desired vocabulary compared to a dictionary book. In the dictionary book, the user must search for vocabulary carefully, besides that the dictionary is also a thick book so that it makes it difficult for users who want to vocabulary to find it difficult.

According to the Kompas.com website in 2021. Thailand is one of the countries that has never been colonized, this is one of the factors why Thai people not really understand English, usually only young people and a few trades can speak English (Iswara 2021).According to the "Pusat Riset Masyarakat dan Budaya (Badan Riset dan Inovasi Nasional) website in 2020, for now the interest in the Thai language is starting to increase. If previously Thailand was only known for its tourist destinations, now in movie and music it has also started to spread, especially in Southeast Asia, of course making any people want to learn the Thai language more deeply (Rastati 2020).

Research conducted in 2021 by Aditya Raka Pradana and Moh. Idris, S.Kom., M.Kom. with the title is "Implementasi User Experience pada Perancangan User Interface Mobile E-Learning dengan Pendekatan Design Thinking". This research resulted in a prototype design for the Amikom Center application with user experience analysis using design thinking, and the test results get a value of 88,6% (Pradana and Idris 2021).

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LITERATURE REVIEW

User Interface

The user interface is a visual display found on the application system of website that aims to make it easier and more comfortable for users to use the application. The user interfaces itself has a goal namely to improve usability and user experience (Bagus, Fajar, and Shani 2019).

User Experience

User Experience is an experience from users about a product or technology when used by users. Conformity between needs and features on a product can be the main factor so that the resulting product can have a good experience (Prasetyaningsih and Ramadhani 2021).

Design Thinking

Design thinking is an application development method by doing an iterative process in which we seek to understand users, challenge assumption and define back to the problems in an effort to identify strategies and alternative solutions that may not be direct seen with our initial level of understanding, at the same time design thinking provides solution-based approach to solving a problem (Kelly et al. 2022). The stages in design thinking can be seen in Fig 1.
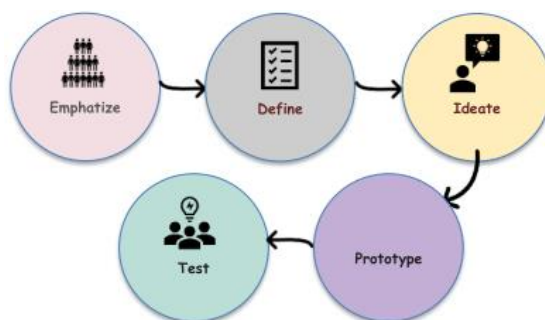

Fig 1. Design Thinking

In design thinking there are five stages in it, including Empathize, Define, Ideate, Prototype, and Test. Empathize is the first stage of Design Thinking to get an empathic understanding that wants to find a solution namely an approach to the user, where this is done to find out what the user really wants (Rabbani, Muftiadi, and Sukoco 2021). Define, is the collection of data generated from the empathize stage, then analyzed to obtain the problems faced by users (Baskoro and Haq 2020). Ideate, is solution ideas to present the best content by thinking about problems and different points of view (Wiguna and Kurniawan 2022). Prototype is the making of a prototype is done by reference that exist, namely from the result of the existing analysis, and also a prototype was made to find out options from the prospective user(Rachman, Tolle, and Priharsari 2021). Test is the last stage in design thinking, at this stage prototype resting is carried out to users to ensure the application is appropriate and easy to use by user(Syabana, Saputra, and Anugrah 2020).

Single Ease Question

Single ease question is a test that is carried out after completing all scenarios or tasks carried out by the respondent, in this single ease question there are seven Likert scales to provide an assessment of the ease of the respondent when carrying out the task (Mahendrasta et al. 2020).

The first stage in using SEQ is to make a questionnaire which is divided into one form containing the task given, or there is another opinion, namely by interviewing directly. Then the value of the Likert scales of 7 was given, the Likert scales has two end which is described from left to right, namely very difficult (Likert score 1) and very easy (Likert score 7). The rating scale in the Single Ease Question can be seen in the description in table 1 (Anggara, Harianto, and Aziz 2021) and for the range of scores from the research instrument in the table 2 (Nunung Dwi Supriyono,Abdul Aziz 2019).

Table 1
Explanation of the Scale of SEQ

Score	Information
1	Very Difficult
2	Difficult
3	Quite Difficult

*name of corresponding author

4	Neutral
5	Quite Easy
6	Easy
7	Very Easy

Table 2
Research Instrument

Score Range	Interpretation
1 – 1,9	Very Difficult
2 – 2,9	Difficult
3 – 3,9	Quite Difficult
4 – 4,9	Quite Easy
5 – 5,9	Quite Ease
6 – 6,9	Easy
7	Very Easy

METHOD

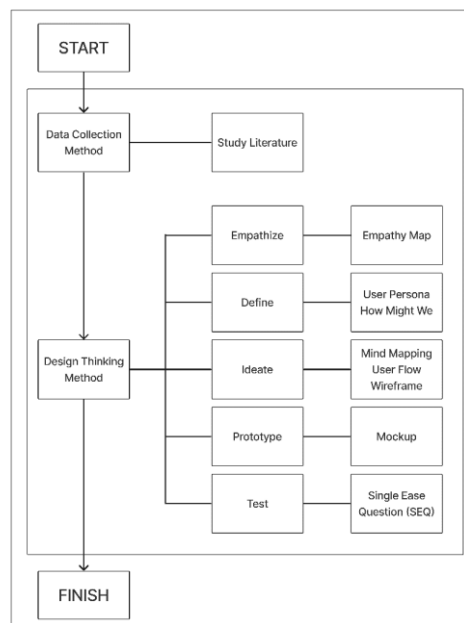The methodology used in this study is shown in Fig 2.

Fig 2. Research Flowchart

Data Collection Method

In conducting this research, the researcher used data collection method through literature study. In the literature study, the data sources are taken from journals, theses and other literature that can be used as a theoretical basis and a reference for discussion in writing.

Empathize

The first stage in design thinking is Empathize. At this stage, the aim is to find out the problems that occur and the problems experienced by the users. At this stage, the things to do is to observe the online Thai language learning application, then conduct interview with five sources, after getting the interview data, the next step is to make an Empathy Map.

Define

The next stage is Define, is defining and mapping data from the problems contained in the Empathize stage. At this stage is making a User Persona that aims to understand the problems and needs that user want and need, *name of corresponding author

next is How Might We, which is to determine the problem from the point of view of the user or Thai language teacher to find ideas at the interface design stage to be build.

Ideate

The next stage is Ideate, which is to develop and get solutions for application based on the problems obtained. At the ideate stage, the thing to do is create a Mind Mapping that aims to map concepts and ideas to create an interface design for the application, the next step is making User Flow, which is the flow of each task that aims to find out the process of running a task or feature in the application. And finally, the Wireframe is a rough description used in application that contain a black and white picture and the placement of icons and layouts in the application.

Prototype

The next stage is the prototype, is the start of designing the application based on the results of the solution idea in the previous stage. At the Prototype stage, the things to do is make a mockup, which is a visual design of the application carried out at Figma, in this process it creates a visual description of the appearance, colors, and features of the application.

Test

The last stage is a Test that uses a Single Ease Question. In this process, direct interviews do have five speakers, one of whom was a Thai language teacher, in this interview the thing that resource person was gave a score of one to seven regarding satisfaction and comfort when users running the prototype.

RESULT

Empathize

Table 3
Empathy Maps

Empathy Maps Anang David Febriawan

Says (What are users saying?)	There are video features for each learning material, and videos that are not boring fir users, as well as a chat feature with the teachers.
Thinks (What do user think?)	- Lack of understanding of consonants, vowels, or tones. - There is no question and answer with the teacher directly.
Does (What do users do?)	The user must first learn the letters in Thai independently.
Feels (What do users feel?)	- Confused - Bored - Difficulty

Define

Fig 3 is a picture of the User Persona of one of the respondents.

A woman who is familiarly called Tia is 24 years old, is a writer who has published 4 books.

Tia Purnama
Kuningan, West Java

"Keep breathing! Fighting!"

Goals: I want to learn Thai more deeply, especially from the very basics, and let me know what it means if you watch a movie without subtitles.

Desired features: Sample videos, so we know and don't make mistakes to read the tone, and quizzes to deepen knowledge

Frustration: A bit difficult to access if the network is bad. There are also some materials that make you confused
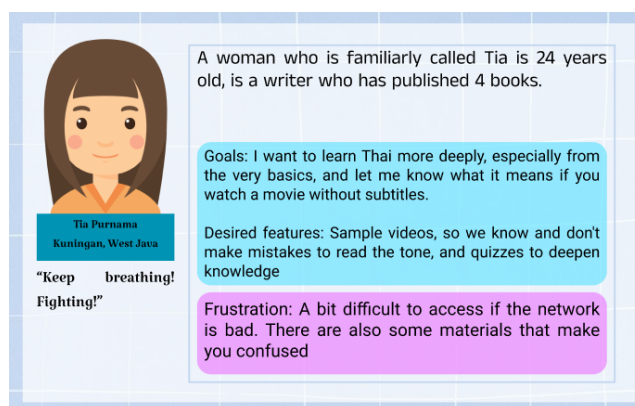
Fig 3. User Persona from Tia Purnama

*name of corresponding author

Fig 4 is the result of How Might We has been obtained.
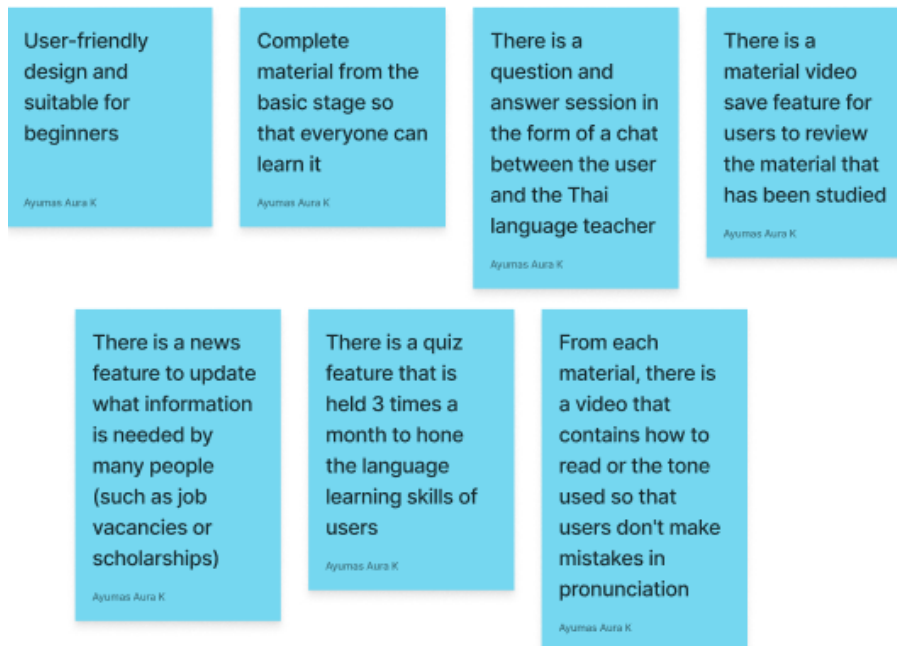

Fig 4. How Might We

Ideate
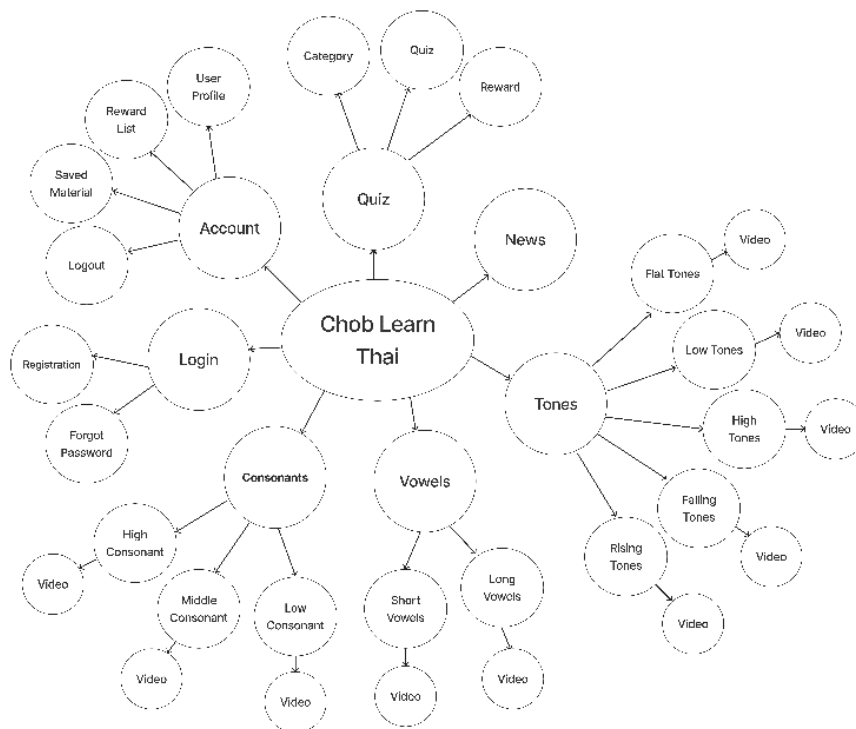Fig 5 is the drawing process of Mind Mapping.

Fig 5. Mind Mapping

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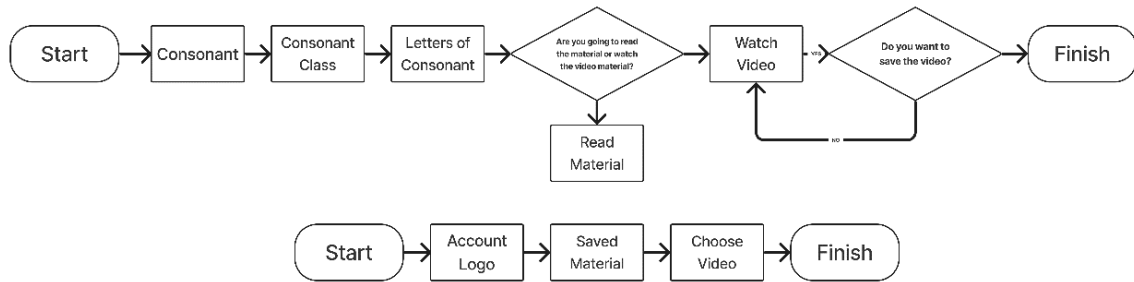Fig 6 is an image of the user flow of consonants and the saved material.

Fig 6. User Flow Consonant and Saved Material

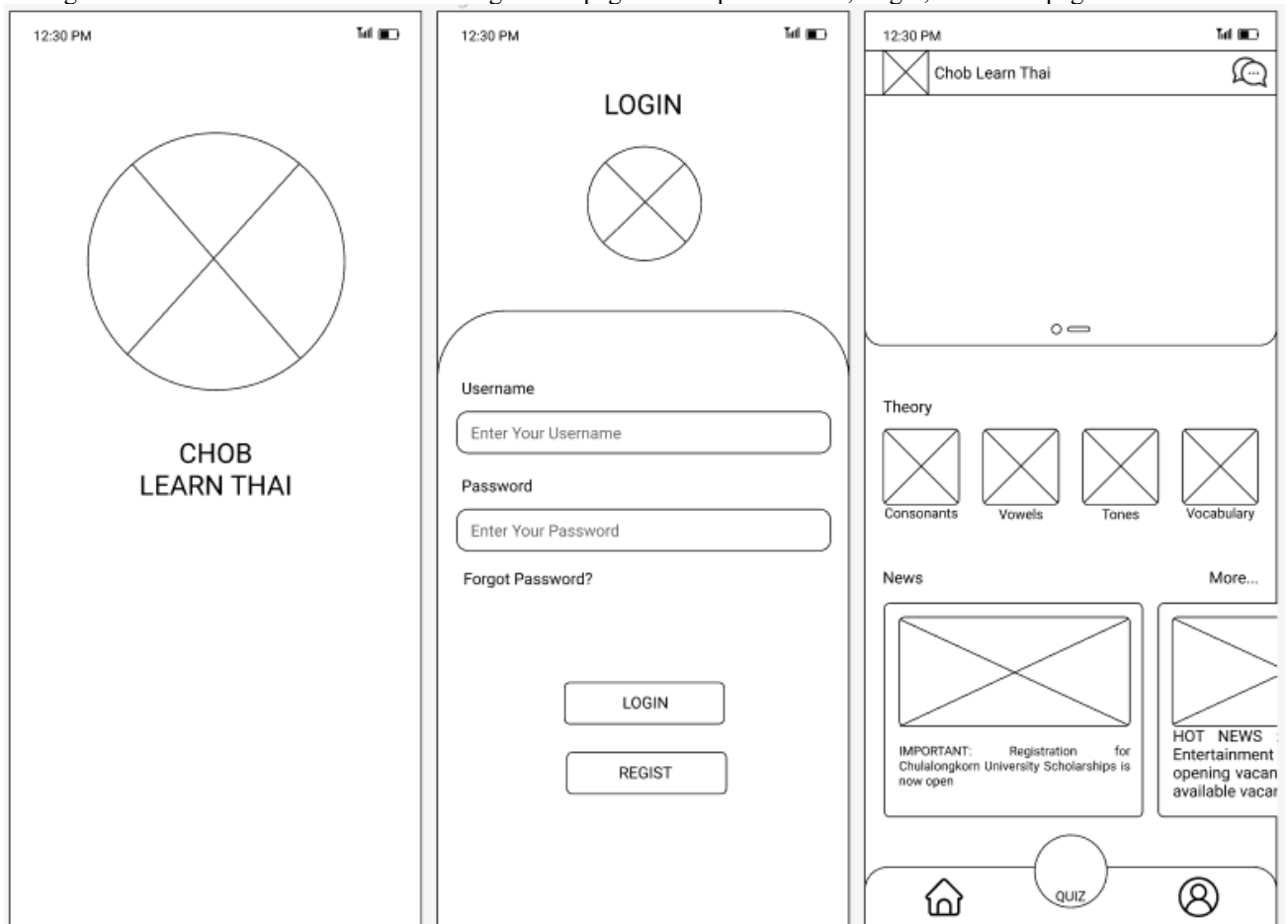Fig 7 is a wireframe. In the wireframe image is the page of the splash screen, Login, and Homepage.

Fig 7. Wireframe

Prototype
Fig 8 is a mockup. In the mockup image is the page of the splash screen, Login, and Homepage.
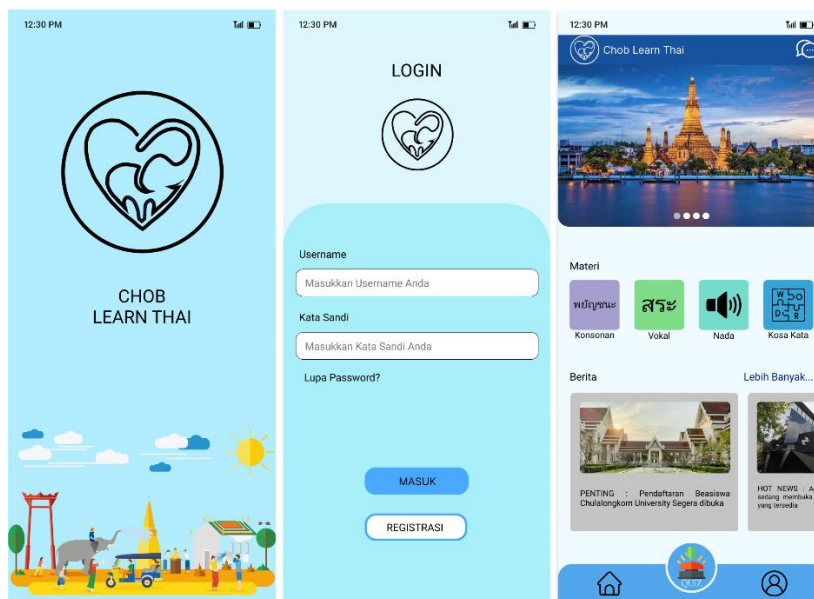
Fig 8. Mockup

Test

Table 4 is a table that contains function and tasks in the Single Ease Question Test.

Table 4
Functions on SEQ Test

No.	Function Name	Task
1	Registration	Create an account by filling in Name, Email, Username, Date of Birth, Phone Number, Password, and Repeat Password, then enter the phone number to get the OTP code.
2	Login/Home	Login using the username and password used during registration. If successful, you will immediately enter the Homepage.
3	Forgot Password	Enter phone number, enter OTP code, and enter new password and repeat password.
4	User Profile and Edit Profile	When on the homepage, select the account logo, then choose 'my profile' and the profile can be edited.
5	Saved Material	Go to the account page, then select the saved material, and select the video you want to replay.
6	Reward	Go to the account page, then select the quiz reward, then can see the results of the quiz that has been done.
7	Consonant and Video Materials	When on the Homepage, there is a choice of material, select Consonants, which has three classes, after choosing a consonant class, then select the consonant letter and can view notes or play video material.

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8	Vowel and Video Materials	When on the Homepage, there is choice of material, select Vowel, which has two vowels, after selecting a vowel, then choose a vowel and can view notes or play video material
9.	Tone and Video Materials	When on the Homepage, there is choice of material, select Tone, which has five tones, after selecting a tone, the choose a tone and can view note or play video material
10	Vocabulary and Video Materials	When on the Homepage, there is choice of material, select vocabulary, which has three categories of vocabulary, after selecting the desired vocabulary, the can view notes or play video material
11	News	When on the Homepage can select news, or can see "more" for other news options.
12	Quiz	Choose the Quiz logo, select start quiz and do the quiz after completion, a score will appear and can be claimed, which will enter the list on the reward page.
13	Logout	Go to the account page, click the logout logo located at the top right.

Table 5 is the test result of one of the respondents.

Table 5
The answer to the SEQ results from one of the respondents

No	Task	Likert Scale						
		1	2	3	4	5	6	7
1	Registration							1
2	Login/Home							1
3	Forgot Password							1
4	User Profile and Edit Profile						1	
5	Saved Material							1
6	Reward						1	
7	Consonant and Video Materials							1
8	Vowel and Video Materials							1
9	Tone and Video Materials							1
10	Vocabulary and Video Materials						1	
11	News							1
12	Quiz						1	
13	Logout						1	
	Total	0	0	0	0	0	5	8

DISCUSSIONS

In this study, the final result at the Test stage, overall got good results. The calculation is done by calculating the average of the assessment of each task that has been given by all respondents, which amounted to five respondents. In this calculation is done with the help of Microsoft Excel for more definite calculation results, by adding up the values in the task of five respondents and then dividing the total results by the number of respondents and the results are used to see the level of ease of the task being executed. In table (x) is the result of the overall assessment of the respondents.

*name of corresponding author

Table 6
Average overall result from Single Ease Question

No	Task	Average SEQ
1	Registration	6,8
2	Login/Home	6,6
3	Forgot Password	6,8
4	User Profile and Edit Profile	6,4
5	Saved Material	7
6	Reward	6,4
7	Consonant and Video Materials	6,8
8	Vowel and Video Materials	6,6
9	Tone and Materials	6,8
10	Vocabulary and Video Materials	6,6
11	News	6,4
12	Quiz	6,4
13	Logout	6,4
AVERAGE		6,6
MIN		6
MAX		7

In the table, the average result obtained are 6,6 with the minimum value being 6 and the maximum value being 7. If viewed from the table of research instrument (Nunung Dwi Supriyono,Abdul Aziz 2019), for a value of 6,6 it can be entered into the easy category, which means the interface design that has been build can be easily used by users.

CONCLUSION

This study resulted in a prototype design for the language learning mobile application "Chob Learn Thai" using the design thinking method with several features, one of which is the consonant material feature that has notes and videos in it. Based on the Test stage, that have been carried out using the Single Ease Question, the average final result is 6,6 which shows that the interface design in this application is easy to use by users.

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