

**MULTIMEDIA COURSEWARE FOR LEARNING JAPANESE LANGUAGE
LEVEL 1**

By

Chan Mun Choong

A REPORT

SUBMITTED TO

Universiti Tunku Abdul Rahman

in partial fulfillment of the requirements

for the degree of

BACHELOR OF INFORMATION SYSTEM (HONS)

INFORMATION SYSTEM ENGINEERING

Faculty of Information and Communication Technology

(Perak Campus)

MAY 2016

REPORT STATUS DECLARATION FORM

Title: MULTIMECIA COURSEWARE FOR LEARNING
JAPANESE LANGUAGE LEVEL 1

Academic Session: 2016/2017

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Date: 24/08/2016

Date: 24/08/2016

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DECLARATION OF ORIGINALITY

I declare that this report entitled “**MULTIMEDIA COURSEWARE FOR LEARNING JAPANESE LANGUAGE LEVEL 1**” is my own work except as cited in the references. The report has not been accepted for any degree and is not being submitted concurrently in candidature for any degree or other award.

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Name : CHAN MUN CHOONG

Date : 24/08/2016

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ABSTRACT

This project is to discuss about the multimedia courseware for learning Japanese language Level 1 and the target audience of this project is universities' students. The purpose of this project is to design and develop a high quality multimedia courseware for students to learn Japanese language. In addition, this project is to design attractive design, content and animation to encourage and motivate students to learn Japanese language. Besides that, this project also is to reduce the time for understand the contents and to provide voice teaching.

Data information will be collected through a survey and questionnaire which is distributed to the universities' students to answer. After this, a simple analysis is organized to find out the existing problem while students learning Japanese language. Three main problem existing is founded after analyze the data information that is collected from the universities' students, which is lack of high quality multimedia courseware, students is lack of interesting about unattractive design, content and animation, difficult and take some times to understand the contents and no voice teaching. Therefore, this project have to solve the problems.

Furthermore, the methodology used in this project is ADDIE model. The ADDIE model consists of 5 phases, which is Analysis, Design, Development, Implementation and Evaluation. Each of the phases have their own tasks and roles to develop the project and solve the existing problems.

In conclusion, this project is good to help the universities' students to learn Japanese language easily since the content of this project is simple for students to understand, consists of animation to attract and motivate the students to learn Japanese language and voice teaching had been provided for students can learn how to pronoun the Japanese words. This project also can evaluate the understanding of universities' students about the Japanese language.

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1.0 Introduction

1.1 Problem Statement and Motivation

The proposed multimedia courseware is one of the courseware that allows the universities' students to learn and practice Japanese language. However, existing multimedia courseware and traditional teaching style are contain some problems and limitations.

1.1.1 Lack of high quality courseware (Jonassen, 1988; Botha, 1990)

Multimedia courseware is an educational software that used to teach and let people to learn some knowledge easily since the multimedia courseware are included image, animation, sound, text and video to attract learner. However, the user interface of existing multimedia courseware is too complicated that make users do not want to use it. In addition, the video, audio, image, animation and others in the existing multimedia courseware is too many, it may makes users feel not nice instead of attract the users. On the other hand, users cannot concentrate on the contents since their attention had focused on the attractive image, design and music, it may makes users cannot learn any knowledge through the multimedia courseware.

1.1.2 Lack of interesting about unattractive design, content and animation (Johari 2007; Kamaruddin 2010)

Either for students, lecturers or tutors, they are like to see some attractive animation and design. At first, the designer may be want to save time and want the courseware easy to use. Therefore, the designer use the simple design, animation and pure graphic to develop the courseware, but it will bring some disadvantages for the courseware. The simple design, animation and pure graphic will make the students feel bored learn some knowledge from the courseware. Besides that, the students also prefer funny and attractive content such as use some cartoon icon to represent the word rather than the content is full of words. For example, Japanese Teacher (Duote.com 2012). This is one of the multimedia courseware to learn the Japanese language. The

background design of this courseware is too simple and uninteresting for the students, it may make students do not have any interesting and motivation to learn Japanese language.

1.1.3 Difficult and take some times to understand the content (Johari 2007; Nancy 2008; Ryan 2009)

For the traditional teaching method, lecturers will teach the knowledge about the subjects through the textbook, but the students are difficult to understand the content inside the textbook and they do not have motivation to learn the subjects since the textbook is full of words and no any attractive materials such as animation.

1.1.4 No voice teaching (Nicholls 2008)

Traditional teaching method had no provide the voice for the students since they are using textbook to learn the knowledge. Therefore, the students cannot learn how to pronoun the word and unable to memorize the knowledge from the textbook easily.

1.2 Project Scope

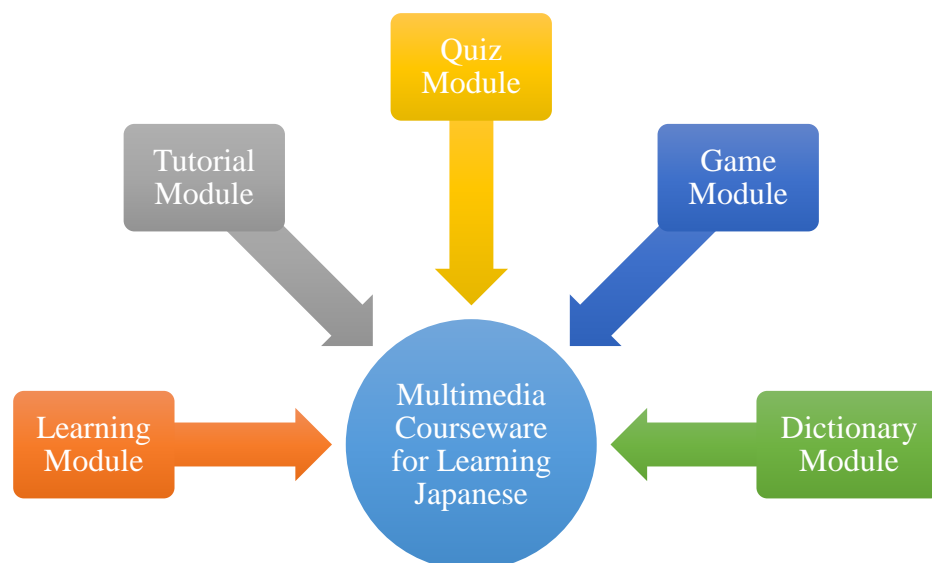


Figure 1-2-F1 Modules for proposed multimedia courseware

The main target users for the proposed multimedia courseware will be universities' students and focus on learning Japanese language. The proposed multimedia courseware will be an attractive educational software for the students to learn themselves about the Japanese language. The proposed multimedia courseware contains several modules which are learning module, tutorial module, quiz module, game module and dictionary module.

1.2.1 Module Description

1.2.1.1 Learning Module

Learning Module is a module that used to present the course materials about the Japanese language for the students to learn it. Learning module will contain different type of multimedia elements such as text, animation, video, audio and animation. Learning module will help students easy to understand and learn the Japanese language since the learning module contains the multimedia elements.

1.2.1.2 Tutorial Module

Tutorial module will let the students to do some tutorial and exercise to review what the students have learn in the learning module. Tutorial module also will let students more understand the Japanese language since it contains some tutorial and exercise to allow students review their Japanese language and knowledge.

1.2.1.3 Quiz Module

Quiz module will allow students to evaluate and test their understanding about the Japanese language. Some question have provided for the students to answer it and it will based on the students have been learned in the learning module and tutorial module. After the students answer the questions, it will display the total mark for the students to evaluate their understanding about the Japanese language.

1.2.1.4 Game Module

Game module is a module which can attract the students and make the students more interesting and motivations to learn the Japanese language since the mini games had been provided in the game module. On the other hand, the game module also will let the students reduce their stress.

1.2.1.5 Dictionary Module

Dictionary module will allow the students find and search some word with the explanation. When the students do not know the meaning of the word, they can use this dictionary to find the meaning and understand it.

1.3 Project Objectives

The project objectives are to design and develop a high quality multimedia courseware for students to learn Japanese language. It also to design attractive design, content and animation to encourage and motivate students to learn Japanese language. In addition, it is to reduce the time for understand the contents and it is to provide voice teaching.

1.3.1 To design and develop a high quality multimedia courseware

Multimedia courseware is the most efficient way to let the students learn about Japanese language compared to traditional teaching style. It is because the multimedia courseware includes graphics, text, audio, video and animation to let students easy to understand the information and contents. Therefore, the author should use the appropriate media to design a high quality multimedia courseware and avoid to use the pure text. A good quality of multimedia courseware will help students can understand the content easily and also can motivate and attract the students to learn the subjects.

1.3.2 To design attractive design, content and animation to encourage and motivate students to learn Japanese language

Students will have more interest and motivation to study Japanese language after they use the multimedia courseware. The multimedia courseware has provide the mini flash game about the Japanese language, it will motivate the students to study and learn Japanese language from the games. It also contains a lot of attractive animation to attract and motivate the students to study more about the Japanese language. In addition, the courseware contains the attractive content which is use cartoon icons to represent the words.

1.3.3 To reduce the time for understand the contents

The author will use the appropriate graphics, animations, videos, audios and texts to represent the content rather than use a lot of words to represent the meaning of content. When students see a lot of words, they have to take a lot of times to understand the words and the meaning. But if the author use some images or animations, they will easy to understand and absorb the meaning into their brain.

1.3.4 To provide voice teaching

The author will provide the voice teaching for the students in the multimedia courseware. Therefore, students are able to learn how to pronoun the word. At the same time, they also can absorb and memorize the knowledge easily. It will help them a lot in learning the Japanese language.

1.4 Impact, significance and contribution

This proposed multimedia courseware will improve the motivation and interests of students to learn and study the Japanese language. The proposed multimedia courseware includes a lot of multimedia elements such as animation, graphics, text, audio and video. Students are prefer to see this kind of elements rather than the content had full of words and they are more interesting to learn Japanese language. The students

also can learn how to pronounce the Japanese alphabet, word and sentences when they click on the Japanese alphabet, word and sentences since voice teaching are provided.

On the other hand, they can learn the Japanese language at their house since they have the proposed multimedia courseware, they are not necessary go to the university to attend the class and learn it from the class, it is good and convenience for the students because it is flexible for the students to learn Japanese language anytime and anywhere. Sometimes, students may be lack of understanding the Japanese language among the university. In this case, they can use this proposed multimedia courseware to learn it quickly and easily because it is include various multimedia elements such as animation, video and graphics, multimedia elements is easy to understand by students rather than full of words. In addition, users also can evaluate their understanding about the Japanese language through the proposed multimedia courseware since the proposed multimedia courseware has included quiz module.

Besides that, the lecturers also easy to teach the students learn the Japanese language by using the multimedia courseware and students will never feel bored and uninteresting because of the attractive animation and graphic.

This proposed multimedia courseware also will have some negative impact. The proposed multimedia courseware may affect the health of the students and made the students become sick if they are sit too long in front of the computer such as myopia, increase the risk of cancer, diabetes, heart disease and obesity. The proposed multimedia courseware also may make the students less communicates with other people such as friends, teachers and parents. It is because they focus on the courseware and learn the Japanese language only, they are addicted on the courseware too much.

1.5 Background Information

Multimedia courseware is educational software that uses to teach people to learn some knowledge at home and this is more attractive compare to traditional teaching style. According to Isa et al. (2010), the courseware can play the role of a teacher and it also is an interesting tool for the students to motivate them during the learning process. The courseware contains the simple and useful information and content about Japanese language and the proposed multimedia courseware will focus on learning the Japanese

language. This proposed multimedia courseware is developed for the universities' students. There are a lot of advantages by using multimedia courseware to teach the students compare to the traditional teaching style.

The traditional teaching styles are using the book and explain the book's content and share their own knowledge about the content. It will make the students feel bored and uninteresting. To avoid this kind of situation, multimedia courseware is the best solution. Multimedia courseware can provide simple and useful information and content to the students. The information provided in the proposed multimedia courseware is more attractive and interesting for students compare to the books. This is because the proposed multimedia courseware is designed in colourful graphic, attractive animation and simple content, it can attract and encourage the students to learn Japanese language. A mini flash game of Japanese language are also consists in the proposed multimedia courseware. Furthermore, the students can watch some video that consists in the multimedia courseware to learn Japanese language more attractive.

Besides that, students can learn Japanese language in 24 hours by using the proposed multimedia courseware. They are not necessary go to university and attend the class since they can learn it at the house. On the other hand, it also can help students to save their money since they are using the proposed multimedia courseware and no need to buy extra Japanese textbook. In addition, this proposed multimedia courseware can help to evaluate understanding of the universities' students about the Japanese language.

Lastly, this proposed multimedia courseware is developed by using the ADDIE methodology. This consists of 5 phases, which is Analysis, Design, Development, Implementation and Evaluation. Each of the phases have their own tasks to develop the proposed multimedia courseware and solve the existing problem.

2.0 Literature Review

2.1 Introduction of Multimedia

Multimedia is one of the terms with many different things and means to different people. According to Hofstetter (2001), “Multimedia is the use of a computer to present and combine text, graphics, audio, and video with links and tools that let the user navigate, interact, create, and communicate.” (Hofstetter 2001).

Furthermore, According to McGloughlin (2001), “Multimedia is a combination word of “multi” and “media”. Multi is refer to various, while media is refers to combination software and hardware that used for communication. Multimedia is an interactive presentation computer application that incorporating media elements such as graphic, animation, text, video, and sound, on a computer.” (McGloughlin 2001)

In addition, according to Christensson (2006), “As the name implies, multimedia is the integration of multiple forms of media. This includes text, graphics, audio, video, etc.” (Christensson 2006).

Moreover, according to Parekh (2013), “Multimedia, in the general sense, therefore, means “multiple intermediaries” between the source and sink of information or “multiple means” by which information is stored, transmitted, presented or perceived” (Parekh 2013).

In conclusion, multimedia implies multiple media means that people can communicate through the multiple media. In addition, multimedia is a combination of 5 multimedia element which is text, graphic, audio, video and animation.

2.1.1 Benefits of Multimedia

2.1.1.1 Better Understanding

In education, multimedia allow the students to better understanding the content compare to textbook. Textbook let students feel boring because it only consists of text and a few pictures in the content. On the other hand, multimedia provides an attractive content with multimedia elements and it allow the students easier to understand.

2.1.1.2 Ease of use

Multimedia can make the application easier to use and operate than non-multimedia application. This is because the application can easier to use and operate with the multimedia interface. The application also user-friendly for the users with the multimedia elements, it make the users will not spent many time to use the application.

2.1.1.3 Efficiency

With the multimedia, the application will become more fun to use and more efficient. This is because the multimedia elements had been provided, it can help the users use the application to do their job more efficient. In education, lecturer can teach the students more efficient and can let them easier to understand the content by using multimedia.

2.1.1.4 Intuitive Interface

With the intuitive interface, users can use the system easily and directly without training. Intuitive interface means that using proper responses and elements such as images, audio, and icons to provide clear and easy input for the users.

2.1.1.5 Powerful

Multimedia is powerful in the class and presentation because it consists of text, graphic, audio, video and animation. People can understand and focus on the content using multimedia rather than the traditional teaching and presentation style which the content is consists most of the text.

2.2 Definition of Multimedia Courseware

According to Hick (1997), “Multimedia courseware is many things to many people. In general terms, multimedia courseware is the use of different communications mediums within a single computer program used to present information. By communications mediums, we mean audio for music, sound effects, or voice-over narration, still photographs and / or graphics to help the end user understand the message that is being presented, video to further explain or illustrate ideas.” (Hick 1997). In addition, Yang Jing (2005) state that “Courseware is educational material intended as kits for teachers or trainers or as tutorials for students, usually packaged for use with a computer. Courseware can encompass any knowledge area, but information technology subjects are most common. Courseware is frequently used for delivering education about the personal computer and its most popular business applications, such as word processing and spreadsheet programs.”

2.2.1 Benefits of Multimedia Courseware

2.2.1.1 Improves Learning

Various studies shown that interactive multimedia learning is more enjoy, increase learning and save more time compare to traditional teaching style. The learners is easier to understand the contents and more attract the learners compare to traditional teaching style and textbook.

2.2.1.2 Flexible

Multimedia courseware is more flexibility compare to traditional teaching style. People can use multimedia courseware at anytime and anywhere such as teaching on the desktop, learning center, home or travelling, since the multimedia courseware can be stored in CD-ROM and also is available on networks and internet. All of these make multimedia courseware more flexibility.

2.2.1.3 Interactive

Interactivity is mutual action between the learner, the learning material and the learning system. Various studies shown that interactivity has a strong positive effect on learning. Using the interactive multimedia, learner can learn faster and have better attitudes toward learning.

2.2.1.4 Modular

Each topic or section is separate and stand alone, so the learners can choose their topic areas they want to learn, and skip the topic they do not want. It can save the time without learn some useless knowledge which is not belong to their areas.

2.3 Fact Finding

First of all, the method that used to collect information and data is survey and questionnaires method. Survey and questionnaires are one of the method which can collect and analyze the data easily from a target population. By using this method, the data and information will be collected from the target users.

Furthermore, the second method that used to collect information and data is observation. It is very useful to collect and gain more information to develop a multimedia courseware. The author will observe and compare existing program and system with the proposed system. Therefore, the author can know the different between existing program and system with the proposed system and try to improve the proposed system.

2.4 Data Collection

For each set of questionnaire, it have 12 questions and the questionnaire are distributed to 50 universities' students to answer the question since 50 universities' students will give the trustworthy data (Optimalworkshop, 2016). Through the questionnaire, the author can collect and analyze the data. Furthermore, the questionnaire has prepared different question for the universities' students such as background of universities' students, background of multimedia courseware, problem of multimedia courseware and future improvement for multimedia courseware. Below is the data collected from the questionnaire.

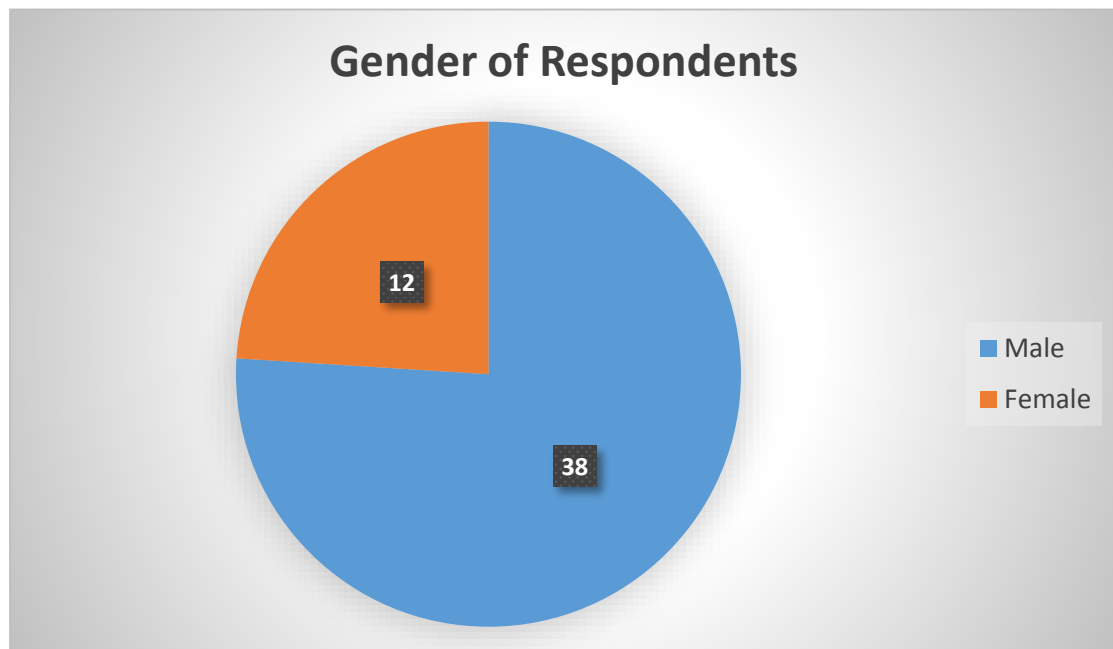


Figure 2-4-F1 Gender of Respondents

From the Figure 2-4-F1, 38 of respondents were male and 12 of respondents were female over 50 respondents.

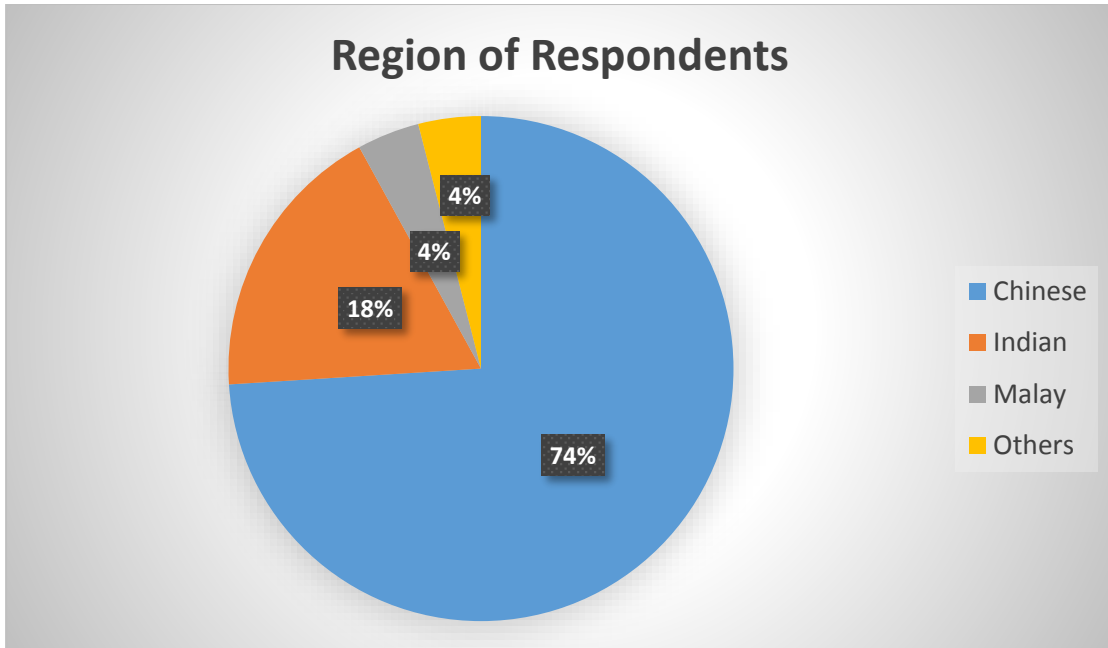


Figure 2-4-F2 Region of Respondents

Next, 74% of them were Chinese, 18% of them were Indian, 4% of them were Malay and 4% of them were other region such as Kenya. Figure 2-4-F2 has shown the region of respondents.

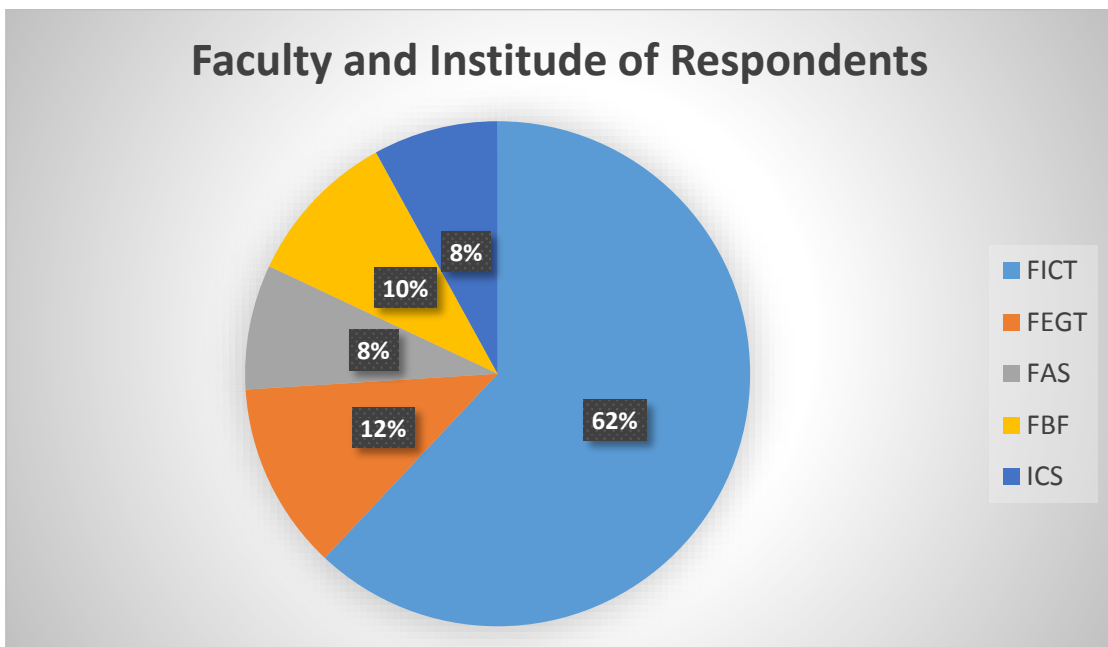


Figure 2-4-F3 Faculty of Respondents

Furthermore, 62% of respondents were came from FICT (Faculty of Information and Communication Technology), 12% of respondents were came from FEGT (Faculty of

Engineering and Green Technology), 8% of respondents were came from FAS (Faculty of Art and Social Science), 10% of respondents were came from FBF (Faculty of Business and Finance and 8% of respondents were came from ICS (Institute of Chinese Studies). Figure 2-4-F3 has shown the faculty and institute of the respondents.

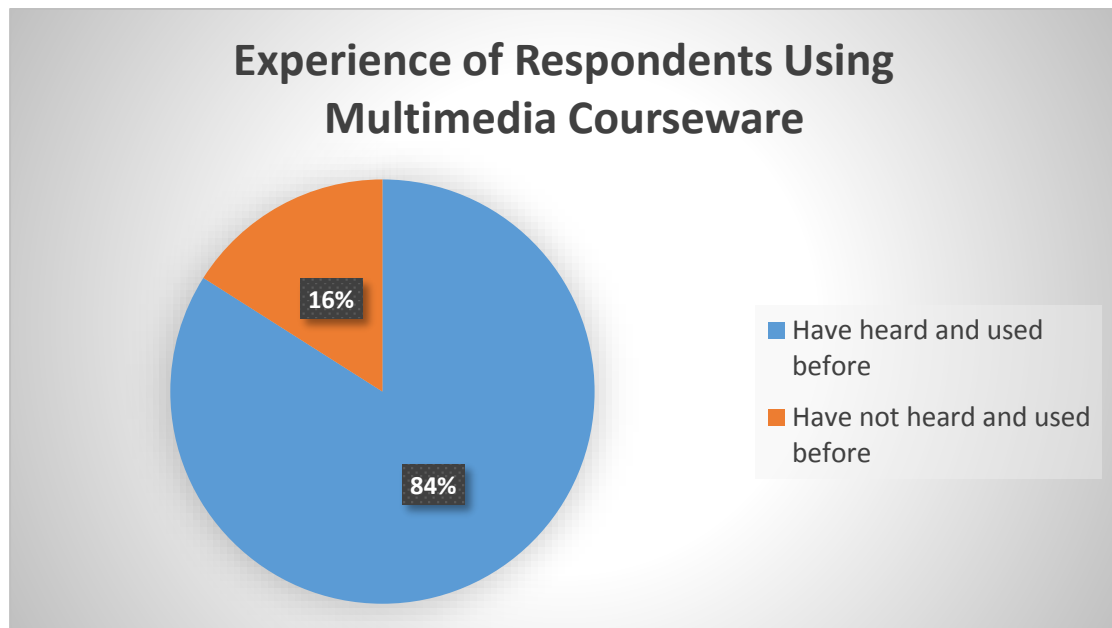


Figure 2-4-F4 Experience of respondents using multimedia courseware

According to Figure 2-4-F4, 84% of respondents have heard and used multimedia courseware before and 16% of respondents have not heard and used multimedia courseware.

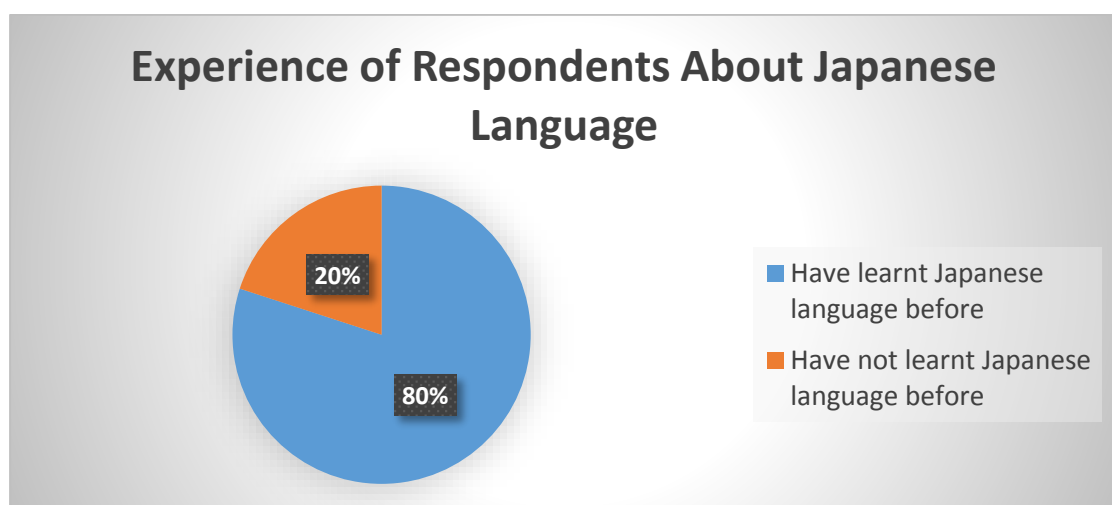


Figure 2-4-F5 Experience of respondents about Japanese language

From the Figure 2-4-F5, 80% of respondents have learnt Japanese language before and 20% of respondents have not learnt Japanese language.

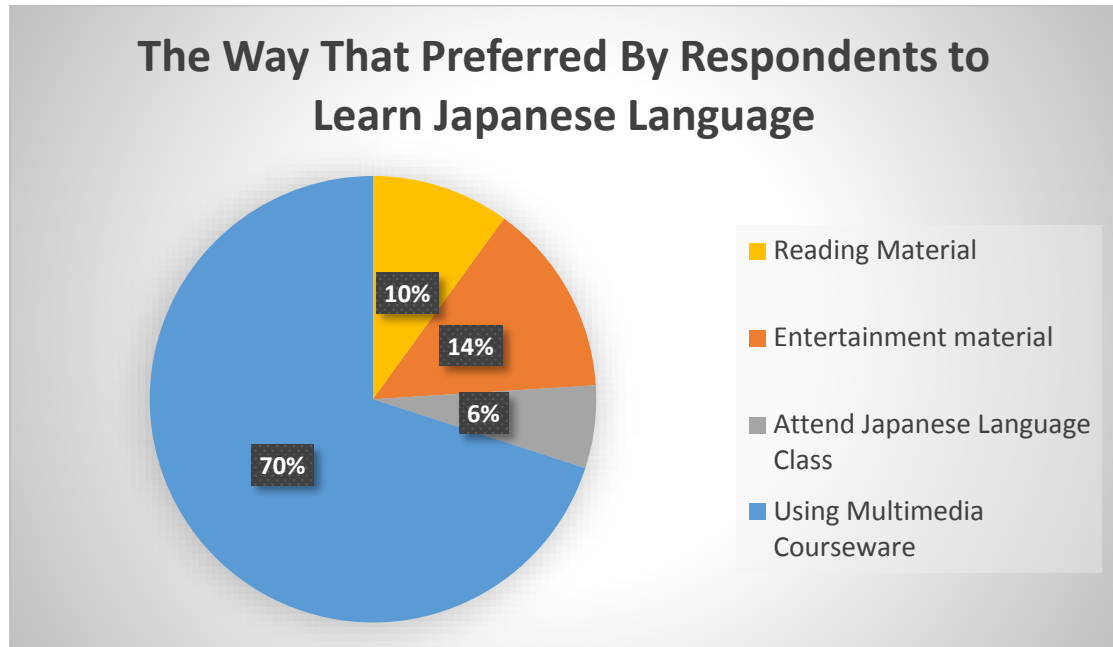


Figure 2-4-F6 The way that preferred by respondents to learn Japanese language

In addition, the questionnaires has asked the respondents about the way were preferred by them to learn Japanese language. According to Figure 2-4-F6, 10% of respondents were preferred reading material (Newspaper, Magazine, Book, Comic) to learn Japanese language, 14% of respondents were preferred entertainment material (Anime, Movie, Music) to learn Japanese language, 6% of respondents were preferred attend Japanese language class to learn Japanese language and 70% of respondents were preferred using multimedia courseware to learn Japanese language.

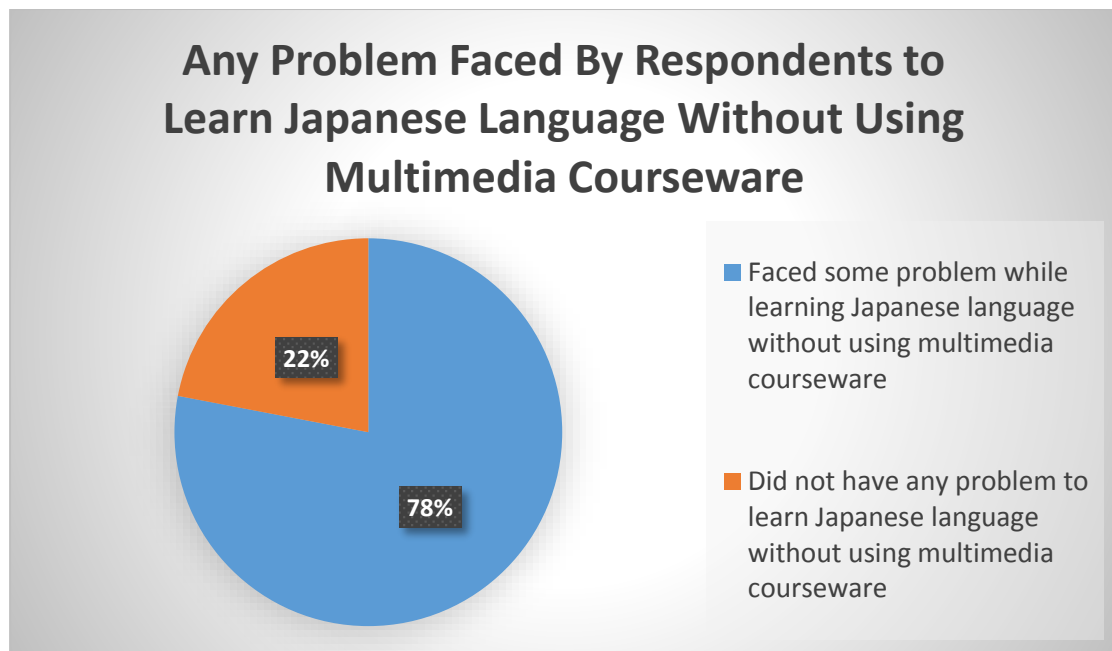


Figure 2-4-F7 Any problem faced by respondents to learn Japanese language without using multimedia courseware

According to Figure 2-4-F7, 22% of respondents answered that they did not have any problem to learn Japanese language without using multimedia courseware, whereas 78% of respondents answered that they faced some problem while learning Japanese language without using multimedia courseware.

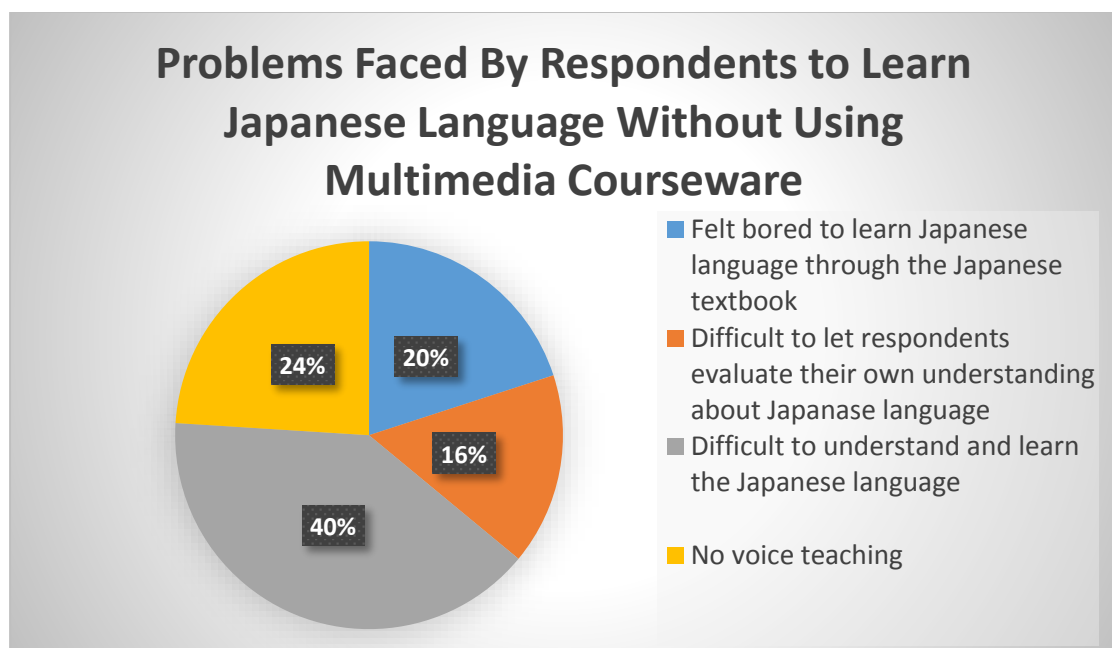


Figure 2-4-F8 Problems faced by respondents to learn Japanese language without using multimedia courseware

Moreover, the data about what problems faced by the respondents without using multimedia courseware also collected. Figure 2-4-F8 has shown that 20% of respondents felt bored to learn Japanese language through the Japanese textbook, 16% of respondents answered that difficult to evaluate their own understanding about Japanese language, 60% of respondents answered that difficult to understand and learn the Japanese language, and 24% of respondents answered that no voice teaching to learn pronunciation.

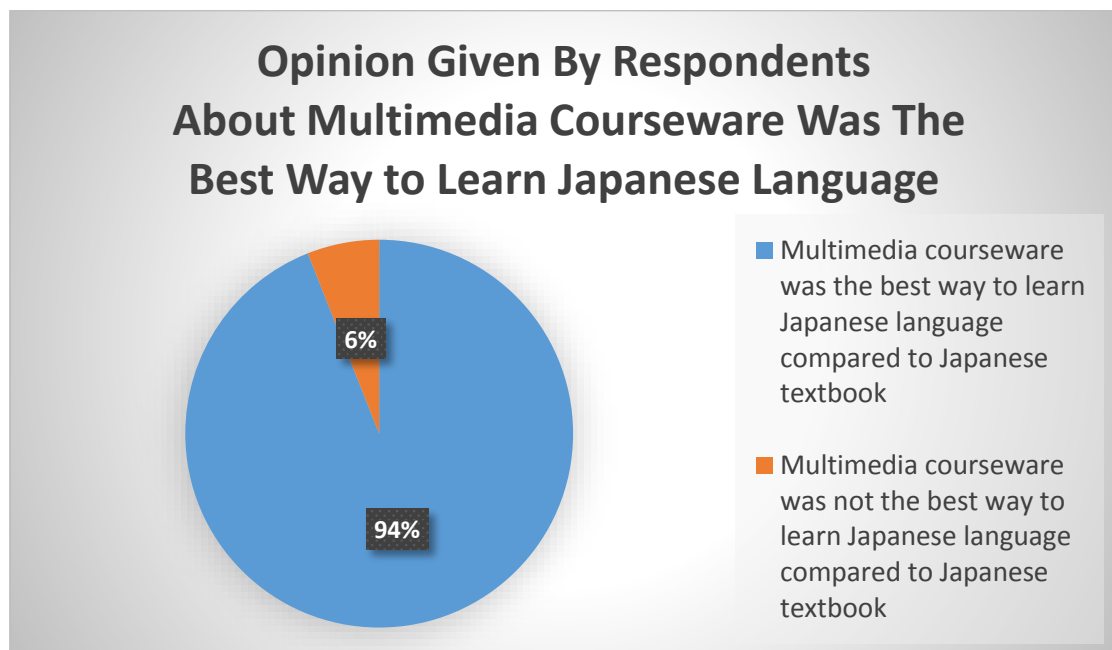


Figure 2-4-F9 Opinion given by respondents about multimedia courseware was the best way to learn Japanese language

Next, according to Figure 2-4-F9, 94% of respondents though multimedia courseware was the best way to learn Japanese language compared to Japanese textbook and 6% of respondents though multimedia courseware was not the best way to learn Japanese language compared to Japanese textbook.

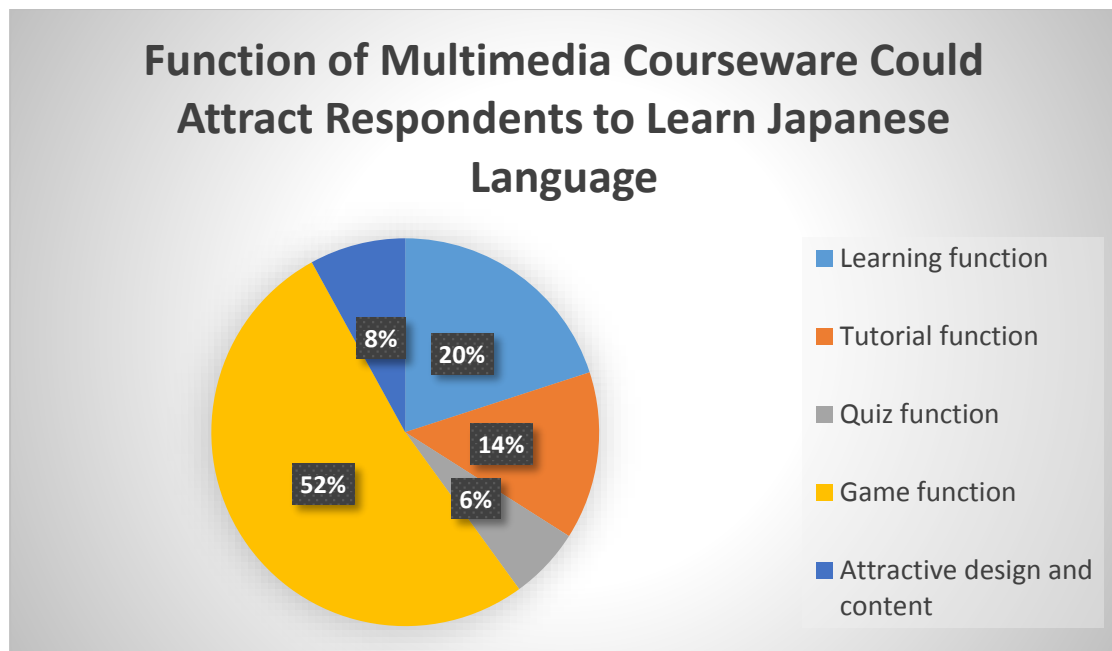


Figure 2-4-F10 Function of multimedia courseware could attract respondents to learn Japanese language

On the other hand, 20% of respondents answered that learning function of multimedia courseware could attract them to learn Japanese language, 14% of respondents answered that tutorial function of multimedia courseware could attract them to learn Japanese language, 6% of respondents answered that quiz function of multimedia courseware could attract them to learn Japanese language, 52% of respondents answered that game function of multimedia courseware could attract them to learn Japanese language and 8% of respondents answered that attractive design and content function of multimedia courseware could attract them to learn Japanese language. Figure 2-4-F10 has shown that function of multimedia courseware could attract respondents to learn Japanese language.

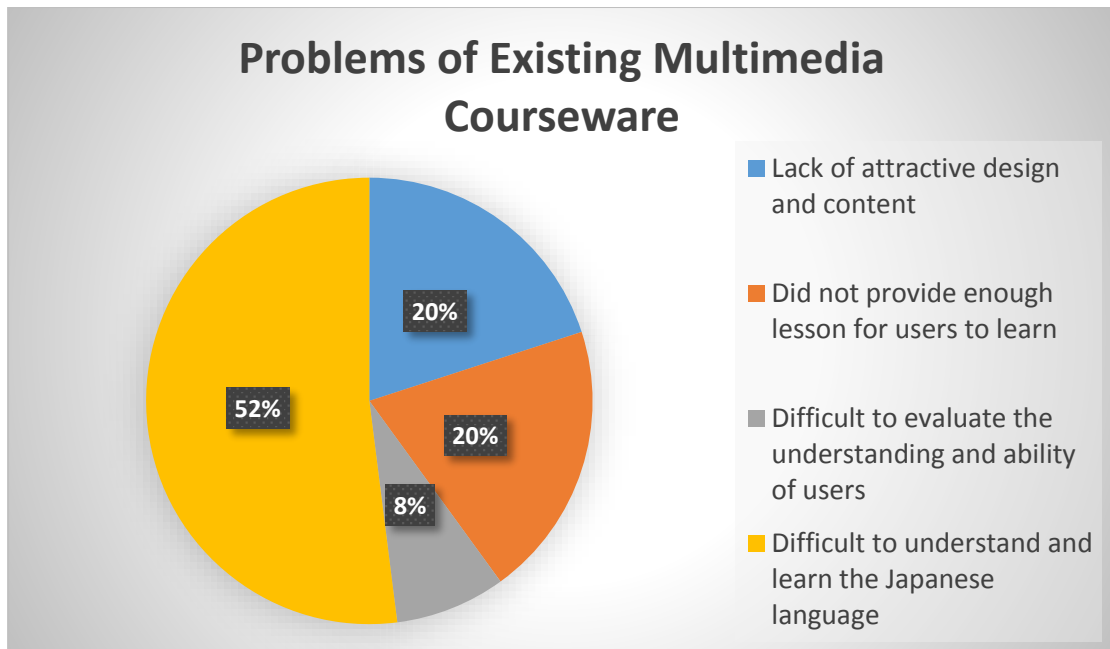


Figure 2-4-F11 Problems of existing multimedia courseware

Next, 20% of respondents answered that the existing multimedia courseware was lack of attractive design and content, 20% of respondents answered that the existing multimedia courseware did not provide enough lesson for users to learn, 8% of respondents answered that the existing multimedia courseware was difficult to evaluate the understanding and ability of users, and 52% of respondents answered that the existing multimedia courseware was difficult to understand the Japanese language. Figure 2-4-F11 has shown that the problems of existing multimedia courseware.

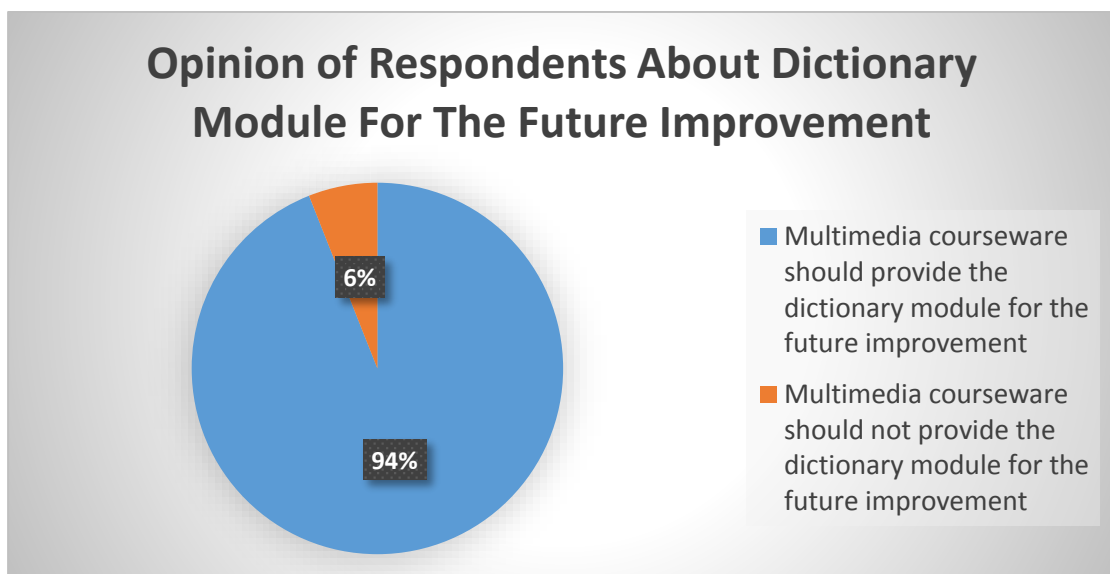


Figure 2-4-F12 Opinion of respondents about dictionary module for the future improvement

Besides that, the questionnaire has asked the opinion of respondents about the existing multimedia courseware should provide the dictionary module for the future improvement. 94% of respondents was agreed about the existing multimedia courseware should provide the dictionary module for the future improvement and 6% of respondents was not agreed about the existing multimedia courseware should provide the dictionary module for the future improvement. Figure 2-4-F12 has shown that the opinion of respondents about the existing multimedia courseware should provide the dictionary module for the future improvement.

2.5 Critical Previous Work

2.5.1 Japanese Teacher



Figure 2-5-1-F1 Screenshot of Japanese Teacher

Japanese Teacher (Duote.com 2012) was one of the multimedia courseware to let people learnt about the Japanese language which was developed by one of the Japanese company. Japanese Teacher is suitable for the beginner and self-learner to learn the Japanese language. Japanese Teacher was developed for the people who cannot memorize the Japanese word, the tone was not pronounce correctly and did not have people to teach Japanese language.

Learning module, tutorial module and quiz module have been provided in this multimedia courseware. For the learning module, 48 lessons with different learning material had been provided for the users to learn it. In addition, more than 100 Japanese words had been provided also. Each of the Japanese words has included pronunciation, meaning and an example to let users learn it easily. For the tutorial module, some exercise and tutorial had been provided to the users.

Furthermore, some question had been provided in the quiz module. Through the quiz module, users could evaluate understanding of themselves about the Japanese language. Besides that, this multimedia courseware also had provided some extra function which was MP3 creator. It was allowed users to convert the lessons into MP3. Therefore, they could bring the lessons and learn the Japanese language anywhere and anytime.

2.5.1.1 Strength

First of all, this multimedia courseware had provided quiz module. For the quiz module, some question had been provided to let users answer it and the score would come out. Through the quiz module, the users could evaluate their understanding about the Japanese language.

Furthermore, 48 lessons had been provided in this multimedia courseware for the users. Therefore, the users could learn the Japanese language with complete lessons. For some multimedia courseware, limited lessons had been provided for the users, it made users cannot learn the Japanese language completely.

Besides that, this multimedia courseware had provided MP3 creator for the users to convert the lessons they want to learn into MP3, therefore the users could learn the Japanese language anywhere and anytime. It brought some benefit and convenience to the users, they no need to bring the textbook anymore when they went out.

2.5.1.2 Weaknesses

First of all, games module had not been provided by this multimedia courseware for the users. It would make the users feel bored since they kept learnt the Japanese

language using this multimedia courseware. Without games module, this multimedia courseware was considered as a traditional teaching style since this multimedia courseware was allowed users to study only.

Furthermore, this multimedia courseware was lack of interesting for the users. This is because the background and interface of this multimedia courseware could not attract the users since the background and interface of this multimedia courseware was pure colour. On the other hand, this multimedia courseware also has not provided any animation, background music and video to attract the users.

2.5.1.3 Suggested Features

This multimedia courseware should provide games module to attract the users learn the Japanese language. Through the games module, users can learn the Japanese language, make them do not feel boring about Japanese language and increase their motivation to keep use the courseware to learn Japanese language. With the games module, users also can reduce their stress.

Besides that, this multimedia courseware also should provide the colourful and attractive background design since it can make users more interesting. Many users always prefer colourful and attractive background. In addition, attractive animation, background music and some video should be provided to attract users.

2.5.2 Smart Start Japanese



Figure 2-5-2-F1 Smart Start Japanese caption here (Calico.org n.d.)

Smart Start Japanese (Calico.org n.d.) was the Japanese version of a multimedia courseware. The courseware was developed by one of the Japanese company and developed for the beginner and the target users was kids from age 8 to adult. It contains three levels which are level 1, 2 and 3, three skill areas which were listening, reading and speaking and six topics to let users learn it. In addition, game-based activities for learning module have been provided in Smart Start Japanese. More than 50 common Japanese words with some graphic and sound also has been provided also in Smart Start Japanese to allow users learn it easily.

Besides that, this multimedia courseware could help users to distinguish between similar looking syllables such as *ぬ* (nu) and *ね* (ne), which users always confused and pronounced the wrong pronunciation about this two vocabulary. In addition, users not only could select a comic balloon to hear, they also can adjust the playback speed of the audio record by clicking provided button which is a turtle icon.

2.5.2.1 Strength

First of all, the users were allowed to evaluate their pronunciation since automatic speech recognition had been provided. Though this speech recognition, users could record a word or sentence in Japanese and compare their pronunciation.

Furthermore, this courseware had provided game-based activities for vocabulary and dialogue practice to attract the users to learn Japanese language in an efficient way. Since this courseware had provided game-based activities, therefore, multimedia elements such as text, graphic, video, audio and animation would be included in this courseware to make this courseware become more attractive.

Besides that, an instructional component had been provided in this multimedia courseware. It was appropriate for beginners because it was introduced 50 common Japanese words with sound and graphic. Since the Japanese words were included sound and graphic. Therefore, it was easy for the users to understand it.

2.5.2.2 Weaknesses

First of all, this multimedia courseware would be lack of learning material in the learning module. Since this courseware was game-based multimedia courseware, therefore, this courseware would focus on games and choose some lesson for the users to learn it, but Japanese should have 48 lessons in Japanese learning material, this was not enough for users to learn the Japanese language.

Besides that, this multimedia courseware would be difficult to evaluate the understanding of users about the Japanese language. This is because some module such as quiz did not provided in this multimedia courseware to evaluate the understanding of users about the Japanese language. Tutorial module had not provided in this multimedia courseware to let the users to do some exercise and tutorial.

2.5.2.3 Suggested Features

This multimedia courseware should provide the complete learning material in the learning module. Therefore, users can learn the complete Japanese language from this multimedia courseware.

Besides that, this multimedia courseware also should provide the quiz module for the users. Through the quiz module, users can evaluate their understanding about the Japanese language. This multimedia courseware also should provide the tutorial module for users to review their knowledge.

2.5.3 Japanese Test



Figure 2-5-3-F1 Screenshot of Japanese Test

Japanese Test (Duote.com 2013) was one of the multimedia courseware to learn about Japanese language which was developed by one of the Japanese company. The software was provided different levels of the Japanese word and test for the users and improved the Japanese level of the users. The software was appropriate for any level of people to use.

This multimedia courseware had provided learning module, tutorial module and quiz module. For learning module, it had provided different levels of ability to let users to choose. According to the level, users would learn the different thing. Users also could choose to learn about vocabulary or grammar. In addition, learning module also has included reading and listening for the users. For tutorial module, some exercise and tutorial had been provided to the users. Users could choose to do a vocabulary tutorial or grammar tutorial. They also could choose the level of tutorial according to their ability and understanding about the Japanese language. For the quiz module, the question had been provided for the users to answer it. Users could choose the level of quiz, the types of quiz and the year of quiz such as the quiz on year 1997. The quiz module also had provided the total score after the users answer all questions. It could help to evaluate the understanding of users about the Japanese language.

2.5.3.1 Strength

First of all, this multimedia courseware had provided more than 100 vocabulary and grammar to let users learn the Japanese language easily. Through this multimedia courseware, users could learn a lot of vocabulary and grammar compared to the other existing multimedia courseware. In addition, this multimedia courseware had provided voice pronunciation for the users. Each of the vocabulary and grammar had included voice pronunciation. Therefore, users could learn the pronunciation of the vocabulary and grammar.

Furthermore, the quiz module had been provided for the users. For the quiz module, some question had been provided to let users answer it and the score would come out. Through the quiz module, the users could evaluate their understanding about the Japanese language.

2.5.3.2 Weaknesses

First of all, users felt bored and no any interest and motivation to learn Japanese language since games module had not been provided by this multimedia courseware for the users. Without games module, this multimedia courseware was considered as a traditional teaching style since this multimedia courseware was allowed users to study only.

Furthermore, this multimedia courseware was lack of interesting for the users. This is because the background and interface of this multimedia courseware could not attract the users since the background and interface of this multimedia courseware was pure colour. On the other hand, this multimedia courseware also had not provided any animation, background music and video to attract the users.

2.5.3.3 Suggested Features

Games module should be provided by this multimedia courseware to attract the users learn the Japanese language. Through the games module, users can learn the Japanese language, make them do not feel boring about Japanese language and increase

their motivation to keep use the courseware to learn Japanese language. With the games module, users also can reduce their stress.

Besides that, the colourful and attractive background design should be provided by this multimedia courseware since it can make users more interesting. Many users always prefer colourful and attractive background. In addition, attractive animation, background music and some video should be provided to attract users.

2.5.4 Japanese-Online



Figure 2-5-4-F1 Screenshot of Japanese-Online

Japanese-Online (Japanese-Online.com 2015) was a free online Japanese learning software to learn about the Japanese language. Japanese-Online had provided the content which was appropriate to different level of study, including lessons for beginner to learn the basic about the Japanese language.

First, Japanese-Online could let users to learn the basic about the Japanese language such as the Hiragana, Katakana and Kanji. It also would teach users how to write and pronounce about other basic character such as number, time and date and identifying simple parts of the sentence. In addition, topic modifier covered some commonly used particles and teach the users how to use particles in the sentence such as を, が and は. On the other hand, Japanese-Online had provided for users to learn the Japanese sentence following the lesson. Besides that, users could learn about an information on Japanese language and customs in categories. It was helpful for the users to understand the information on Japan.

2.5.4.1 Strength

First of all, users could learn the basic character and alphabet about the Japanese language through this online learning software since this online learning software had provided the lesson for beginner to learn and how to pronounce the basic Japanese character and alphabet. In addition, this online learning software was user-friendly for the users to use it since it did not contain some complex function and design for the users.

Besides that, this online learning software was free for the users to learn the Japanese language. Currently, there was many learning software have to buy by the users to learn the Japanese language. Therefore, users have to buy it if they want to learn the Japanese language. But, users no need to buy if they used this online learning software.

2.5.4.2 Weakness

First of all, this online learning software did not provided game module for the users. This was make the users felt bored if they just kept learning and learning. The game module was allow the users to play some mini flash games which were related to their courses to reduce their learning stress and they could learn the Japanese language through the games.

Furthermore, this online learning software was lack of interesting for the users since this online learning software did not provided any animation, video and audio to attract the users to learn the Japanese language. With the animation, video and audio, the users could learn the Japanese language more interesting and easier to understand the content which the content was represented by some animation or icon.

Besides that, this online learning software had not provided tutorial module and quiz module to let the users review their Japanese language and evaluate their understanding about the Japanese language.

2.5.4.3 Suggested Features

Game module should be provided by this online learning software to attract the users learn the Japanese language. Through the games module, users can learn the Japanese language, make them do not feel boring about Japanese language and increase their motivation to keep use the courseware to learn Japanese language. With the game module, users also can reduce their learning stress.

Besides that, the attractive animation, audio and video should be provided by this online learning software since it can make users more interesting and easier to learn the Japanese language. Many users are like to see some attractive animation and video, and they also like to hear some sound when they are using the software, it will make them do not fell boring when they are learning the Japanese language.

Furthermore, tutorial module and quiz module should be provided by this online learning software. Tutorial module can let the users to do some exercise and tutorial to review their Japanese knowledge what have learned in the lesson. Quiz module can let the users to answer some question and the total marks has been provided to let users evaluate themselves.

2.5.5 Japanese-Lesson

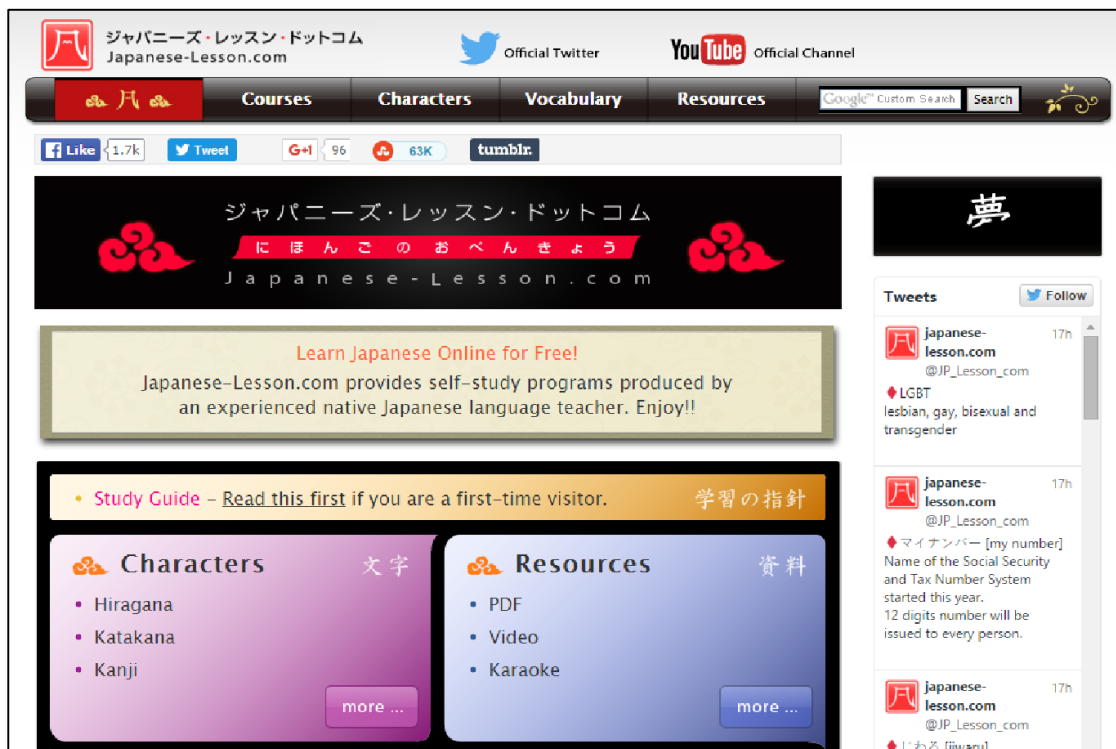


Figure 2-5-5-F1 Screenshot of Japanese-Lesson



Figure 2-5-5-F2 Screenshot of Japanese-Lesson

CHAPTER 2 LITERATURE REVIEW

Japanese-Lesson (Japanese-Lesson.com 2015) was a free online learning software for the users to learn the Japanese language. The purpose of this online learning software was to provide a learning opportunity and materials for those who have no Japanese language school nearby but want to learn the Japanese language.

Japanese-Lesson could let the users to learn the 46 basic character of the Japanese language which were Hiragana, Katakana and Kanji. It was good for the beginner to learn it. In addition, it consists of 11 lessons to teach the users about the 46 basic character of the Japanese language. After the users chose the lesson, they also could choose the different types of learning such as reading, writing and typing. Reading could let users to learn the pronunciation, writing could let the users to learn how to write the character and typing could teach the users how to type the character in the computer. This online learning software also had provided 10 lessons to let users learn about the sentences for conversation. Inside the lessons, it also had provided the exercise to let users review their knowledge what they have learn in the lessons.

Furthermore, this online learning software had provided the resources to let the users downloaded the materials as PDF. The users could practice their writing skill after they downloaded the PDF and printed it. In addition, this online learning software had provided the video to teach the users pronounce the character, wrote the character and how to type the character in the computer.

Besides that, this online learning software had provided extra features which was Karaoke. This section would introduces the popular Japanese songs at Karaoke place. The users could sing the Japanese songs with friends, it was helpful for the Japanese study.

Moreover, this online learning software had provided vocabulary. Inside the vocabulary, lists of words and phrases of different categories had been provided such as numbers, date, time and nations for the users.

2.5.5.1 Strength

First of all, this online learning software had provided different types of learning such as reading, writing and typing to let users learn the pronunciation, how to write the character and how to type in the computer. In addition, this online learning software had provided the videos for the 3 types of learning to attract the users. This online learning software also was user-friendly for the users to use it since it did not contain any complex function and design for the users. It also provide the study guide for the first-time users to know the function of online learning software.

Furthermore, this online learning software was free for the users to learn the Japanese language. Currently, there was many learning software have to buy by the users to learn the Japanese language. Therefore, users have to buy it if they want to learn the Japanese language. But, users no need to buy if they used this online learning software.

Besides that, this online learning software had provided extra features which was Karaoke. This section would introduces the popular Japanese songs at Karaoke place. The users could sing the Japanese songs with friends, it was helpful for the Japanese study.

2.5.5.2 Weakness

First of all, this online learning software did not provided game module for the users to play. This was make the users felt bored if they just kept learning and learning. The game module was allow the users to play some mini flash games which were related to their courses to reduce their learning stress and they could learn the Japanese language through the games.

Furthermore, this online learning software was lack of interesting for the users since this online learning software did not provided any animation to attract the users to learn the Japanese language, although this online learning software had provided video and audio for the users, but this was not enough to attract the users. With the animation, the users could learn the Japanese language more interesting and easier to understand the content which the content was represented by some animation or icon.

Besides that, this online learning software had not provided quiz module to let the users to evaluate their understanding about the Japanese language.

2.5.5.3 Suggested Features

Game module should be provided by this online learning software to attract the users learn the Japanese language. Through the games module, users can learn the Japanese, make them do not feel boring about Japanese and increase their motivation to keep use the courseware to learn Japanese language. With the game module, users also can reduce their learning stress.

Besides that, the attractive animation should be provided by this online learning software since it can make users more interesting and easier to learn the Japanese language. Many users are like to see some attractive animation when they are using the software, it will make them do not fell boring when they are learning the Japanese language.

Furthermore, quiz module should be provided by this online learning software. Quiz module can let the users to answer some question and the total marks has been provided to let users evaluate themselves.

CHAPTER 2 LITERATURE REVIEW

2.5.6 Summary of Comparison with Existing Multimedia Courseware

Table 2-5-T1 Table of Comparison between Existing Multimedia Courseware and My Proposed Multimedia Courseware

Existing multimedia courseware	5 Multimedia elements (animation, text, video, sound, graphic)	Learning Module	Tutorial Module	Quiz Module	Games Module	Advance Module
Japanese Teacher	x	✓	✓	✓	x	✓ (MP3 Creator)
Smart Start Japanese	x	✓	x	x	✓	x
Japanese Test	x	✓	✓	✓	x	x
Japanese-Online	x	✓	✓	x	x	x
Japanese-Lesson	x	✓	✓	x	x	✓ (Karaoke)
My proposed multimedia courseware	✓	✓	✓	✓	✓	✓ (Dictionary)

2.6 Expected Innovation

The proposed multimedia courseware will provides a good interactivity and attractive interface for the users. Therefore, the proposed multimedia courseware will provide many exercise for users to let the users more interactivity with the courseware. In addition, some multimedia courseware did not provide a quiz module for the users to evaluate their understanding. Therefore, the proposed multimedia courseware will provide many question in the quiz module to let users can evaluate their understanding and ability about the Japanese language.

Furthermore, the proposed multimedia courseware will provide some attractive animation and graphic to teach and attract the users learn about the Japanese language in the learning module. With the attractive animation and graphic, the users can understand the contents more easily.

Moreover, the proposed multimedia courseware will provide some games to attract the users and make them more interesting to learn Japanese language. For example, users may find out the object which is match the word provided. It is the good way to attract users to learn Japanese language.

Besides that, the proposed multimedia courseware will provide a dictionary module which allow users to find and search the meaning of the Japanese words. By using this module, the users can understand the Japanese word faster and easily.

3.0 System Design

3.1 Use Case Diagram

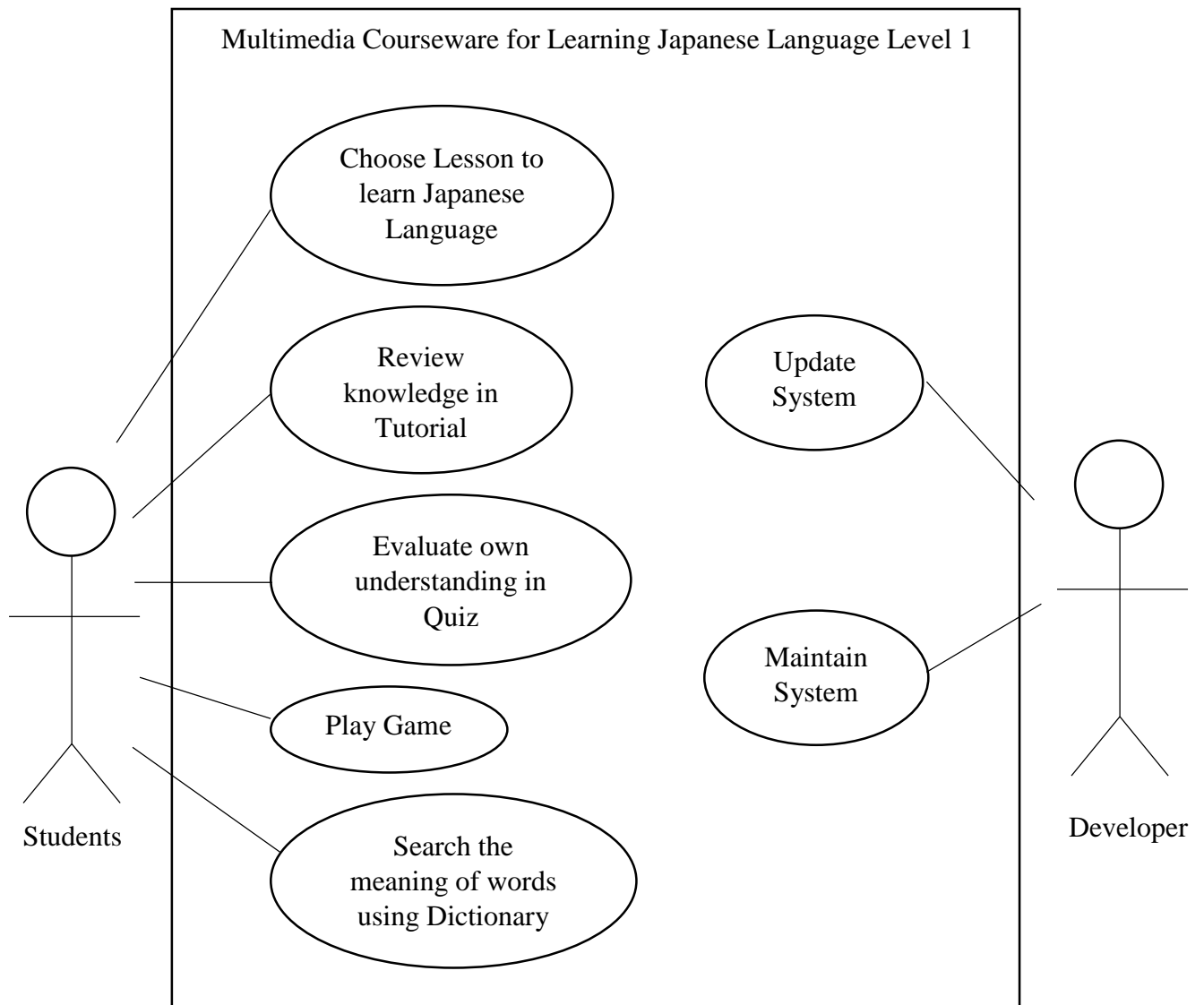


Figure 3-1-F1 Use Case Diagram

3.2 Flow Chart Diagram

3.2.1 Learning Module

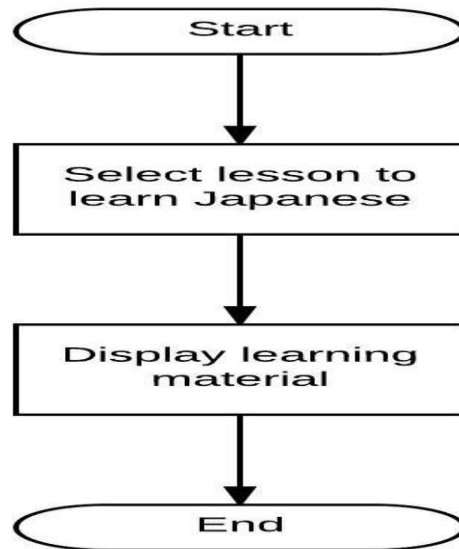


Figure 3-2-1-F1 Flow Chart Diagram of Learning Module

3.2.2 Tutorial Module

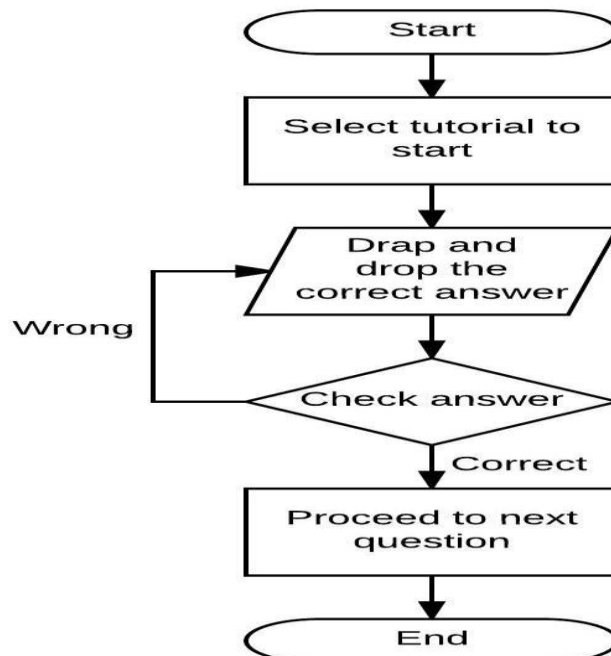


Figure 3-2-2-F1 Flow Chart Diagram of Tutorial Module

3.2.3 Quiz Module

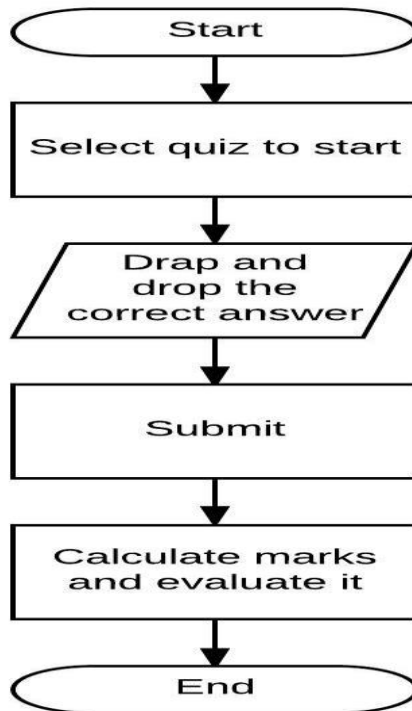


Figure 3-2-3-F1 Flow Chart Diagram of Quiz Module

3.2.4 Game Module

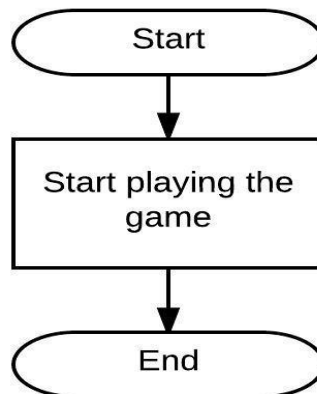


Figure 3-2-4-F1 Flow Chart Diagram of Game Module

3.2.5 Dictionary Module

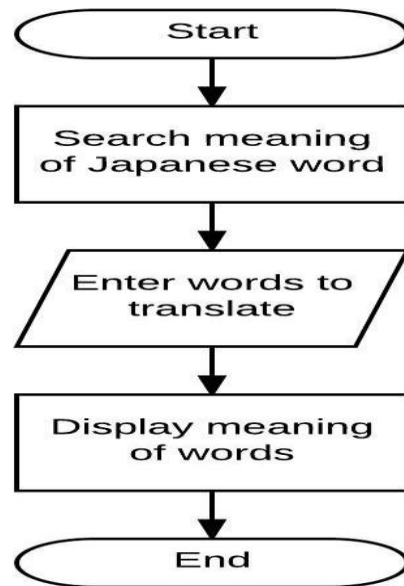


Figure 3-2-5-F1 Flow Chart Diagram of Dictionary Module

3.3 Storyboard Design

No of Storyboard	1
Title of The Project	Multimedia Courseware for Learning Japanese Language Level 1
Page Name	Welcome Page
Internal Link Page	Home Page
Description	This page will display some text to welcome the users.

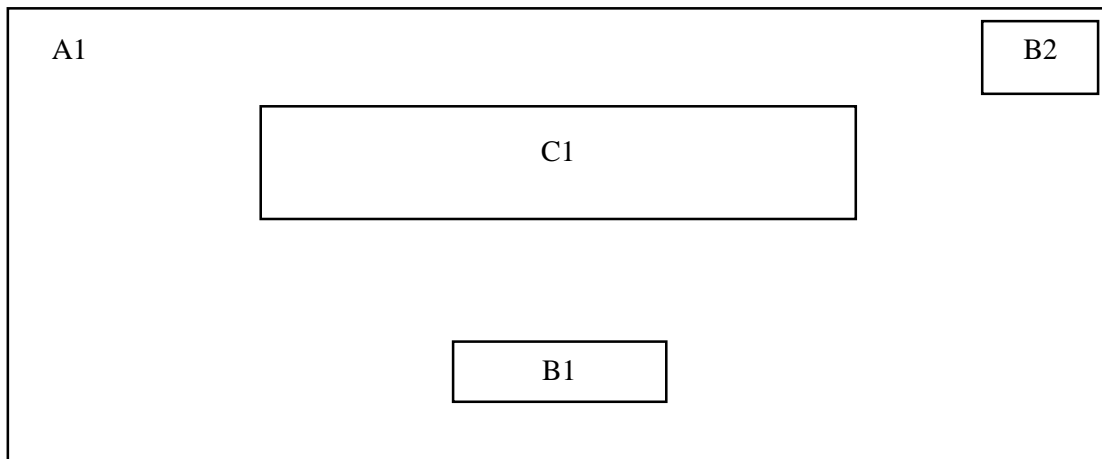


Figure 3-3-F1 Welcome Page

Label	Description
A1	Background of the courseware.
B1	“Start” button will link to the Home Page.
B2	“Sound” button will play and mute the sound.
C1	“Welcome To Japanese World” text.

No of Storyboard	2
Title of The Project	Multimedia Courseware for Learning Japanese Language Level 1
Page Name	Home Page
Internal Link Page	Learning Page, Quiz Page, Tutorial Page, Game Page, Dictionary Page
Description	This page will display different icon to let users to choose which section they want to go.

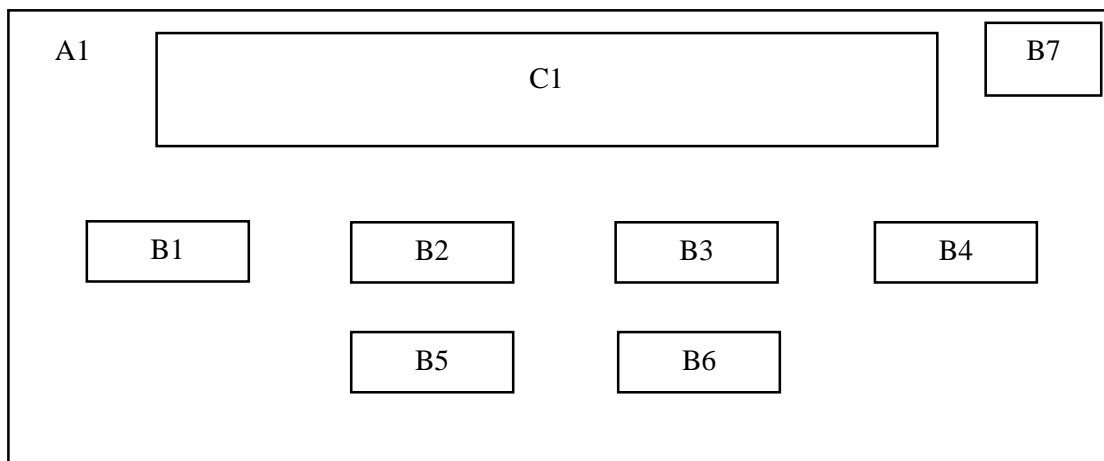


Figure 3-3-F2 Home Page

Label	Description
A1	Background of the courseware.
B1	“Learning” button will link to the Learning Page.
B2	“Tutorial” button will link to the Tutorial Page.
B3	“Quiz” button will link to the Quiz Page.
B4	“Game” button will link to the Game Page.
B5	“Dictionary” button will link to the Dictionary Page.
B6	“Exit” button will exit the courseware.
B7	“Sound” button will play and mute the sound.
C1	The title of the multimedia courseware.

No of Storyboard	3
Title of The Project	Multimedia Courseware for Learning Japanese Language Level 1
Page Name	Learning Page
Internal Link Page	Home Page
Description	This page will allow users choose the topic to learn Japanese language.

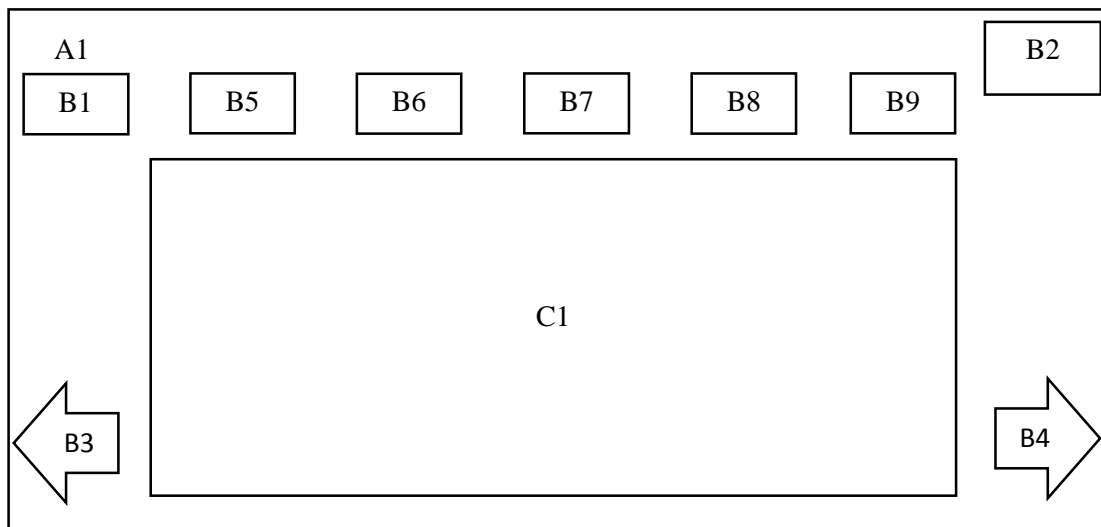


Figure 3-3-F3 Learning Page

Label	Description
A1	Background of the courseware.
B1	“Home” button will link to the Home Page.
B2	“Sound” button will play and mute the sound.
B3	“Previous” button will link to the previous lesson.
B4	“Next” button will link to the next lesson.
B5	“Lesson 1” button will link to the lesson 1.
B6	“Lesson 2” button will link to the lesson 2.
B7	“Lesson 3” button will link to the lesson 3.
B8	“Lesson 4” button will link to the lesson 4.
B9	“Lesson 5” button will link to the lesson 5.
C1	Display the learning material for users.

No of Storyboard	4
Title of The Project	Multimedia Courseware for Learning Japanese Language Level 1
Page Name	Instruction Page
Internal Link Page	Home Page, Tutorial Page
Description	This page will display some instruction to guide users how to do the tutorial and exercise.

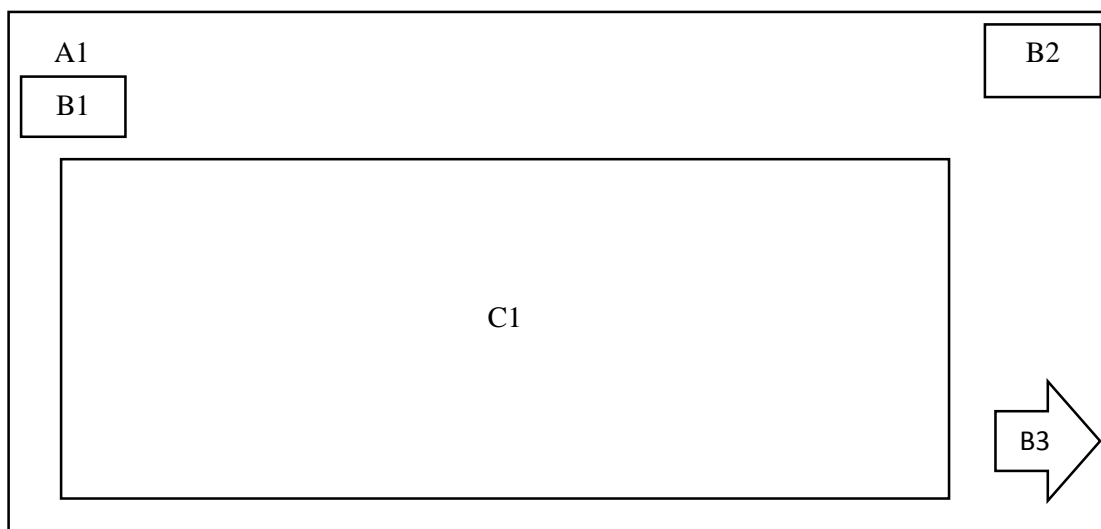


Figure 3-3-F4 Instruction Page

Label	Description
A1	Background of the courseware.
B1	“Home” button will link to the Home Page.
B2	“Sound” button will play and mute the sound.
B3	“Next” button will link to the Tutorial page.
C1	Display the instruction for users.

No of Storyboard	5
Title of The Project	Multimedia Courseware for Learning Japanese Language Level 1
Page Name	Tutorial Page
Internal Link Page	Home Page
Description	This page will allow users to do some exercise and tutorial.

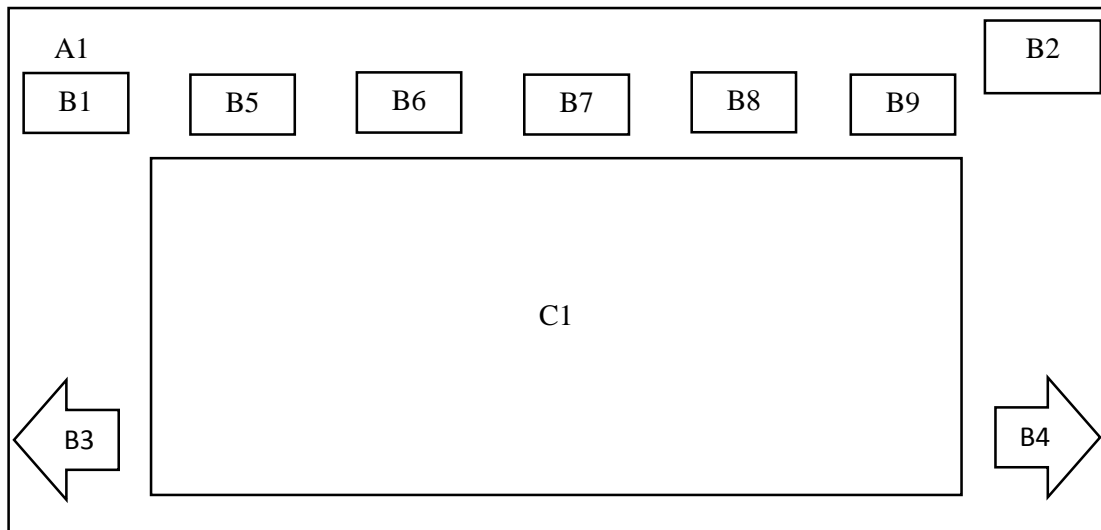


Figure 3-3-F5 Tutorial Page

Label	Description
A1	Background of the courseware.
B1	“Home” button will link to the Home Page.
B2	“Sound” button will play and mute the sound.
B3	“Previous” button will link to the previous tutorial.
B4	“Next” button will link to the next tutorial.
B5	“Tutorial 1” button will link to the tutorial 1.
B6	“Tutorial 2” button will link to the tutorial 2.
B7	“Tutorial 3” button will link to the tutorial 3.
B8	“Tutorial 4” button will link to the tutorial 4.
B9	“Tutorial 5” button will link to the tutorial 5.
C1	Display the tutorial question for users.

No of Storyboard	6
Title of The Project	Multimedia Courseware for Learning Japanese Language Level 1
Page Name	Quiz Page
Internal Link Page	Writing Test Page, Reading Test Page, Listening Test Page
Description	This page will display the type of quiz for users to choose.

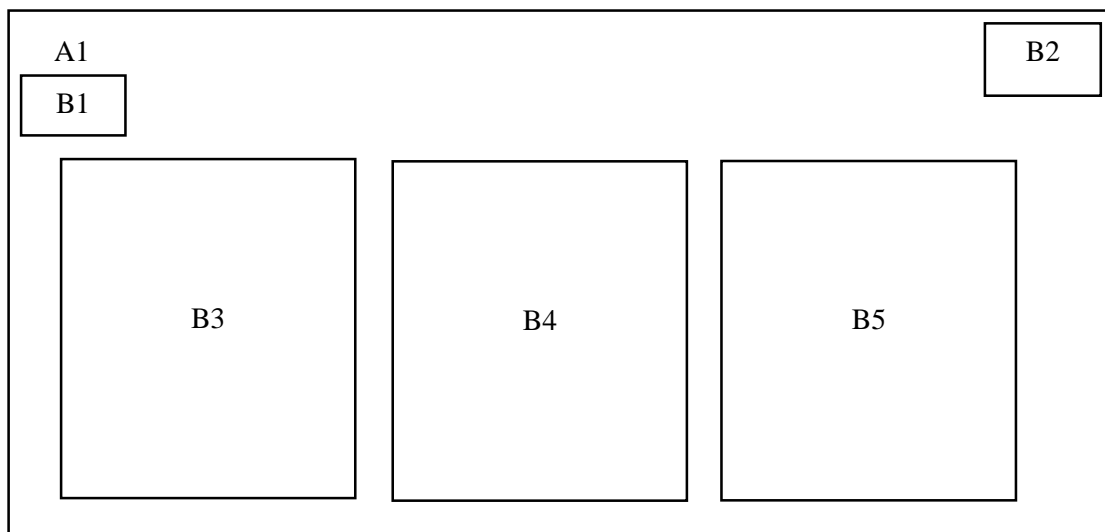


Figure 3-3-F6 Quiz Page

Label	Description
A1	Background of the courseware.
B1	“Home” button will link to the Home Page.
B2	“Sound” button will play and mute the sound.
B3	“Writing Test” button will link to the Writing Test Page.
B4	“Reading Test” button will link to the Reading Test Page.
B5	“Listening Test” button will link to the Listening Test Page.

No of Storyboard	7
Title of The Project	Multimedia Courseware for Learning Japanese Language Level 1
Page Name	Writing Test Page
Internal Link Page	Home Page, Quiz Page
Description	This page will allow users to do quiz about writing.

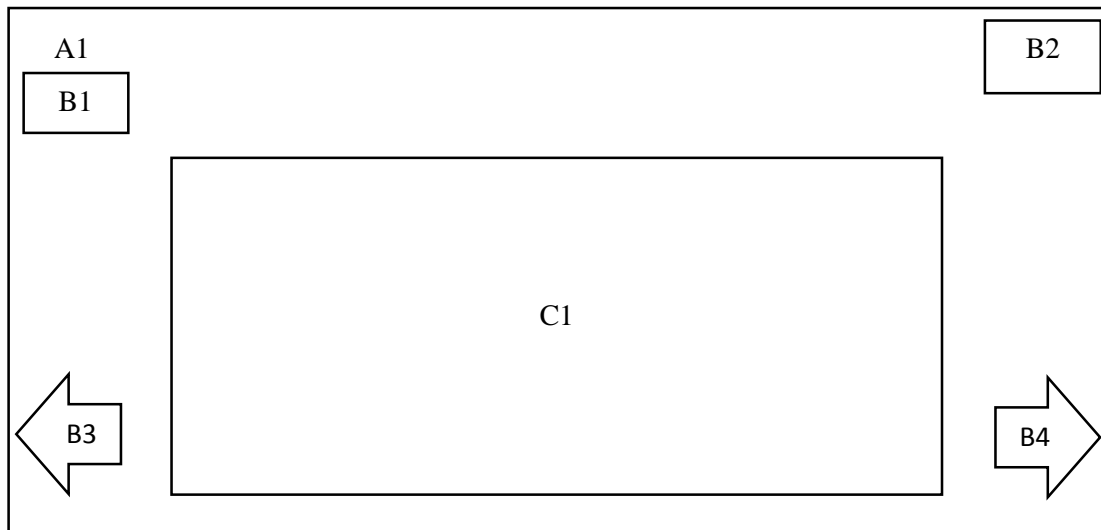


Figure 3-3-F7 Writing Test Page

Label	Description
A1	Background of the courseware.
B1	“Home” button will link to the Home Page.
B2	“Sound” button will play and mute the sound.
B3	“Back” button will link to the Quiz Page.
B4	“Next” button will link to the next question.
C1	Display the quiz question for users.

No of Storyboard	8
Title of The Project	Multimedia Courseware for Learning Japanese Language Level 1
Page Name	Reading Test Page
Internal Link Page	Home Page, Quiz Page
Description	This page will allow users to do quiz about reading.

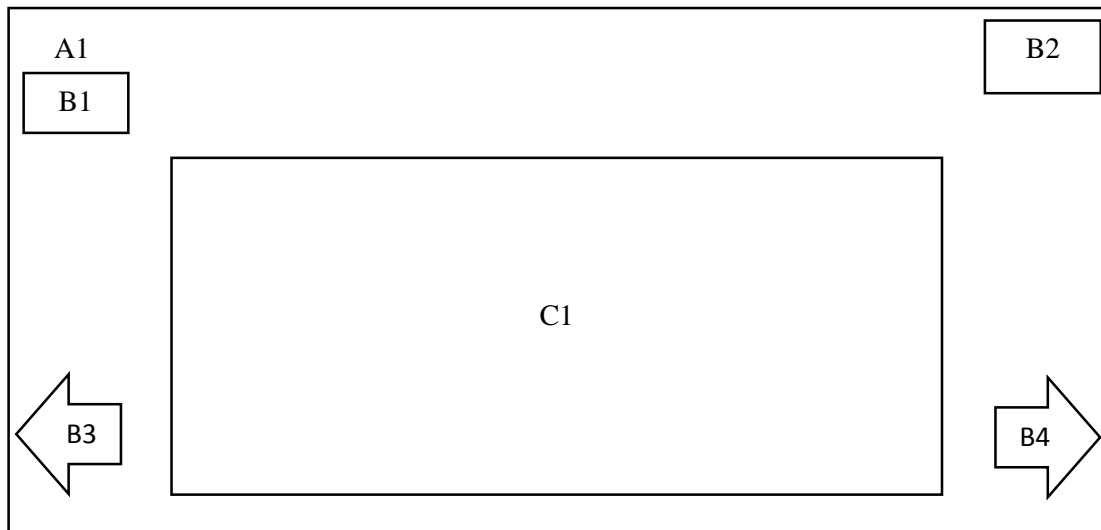


Figure 3-3-F8 Reading Test Page

Label	Description
A1	Background of the courseware.
B1	“Home” button will link to the Home Page.
B2	“Sound” button will play and mute the sound.
B3	“Back” button will link to the Quiz Page.
B4	“Next” button will link to the next question.
C1	Display the quiz question for users.

No of Storyboard	9
Title of The Project	Multimedia Courseware for Learning Japanese Language Level 1
Page Name	Listening Test Page
Internal Link Page	Home Page, Quiz Page
Description	This page will allow users to do quiz about listening.

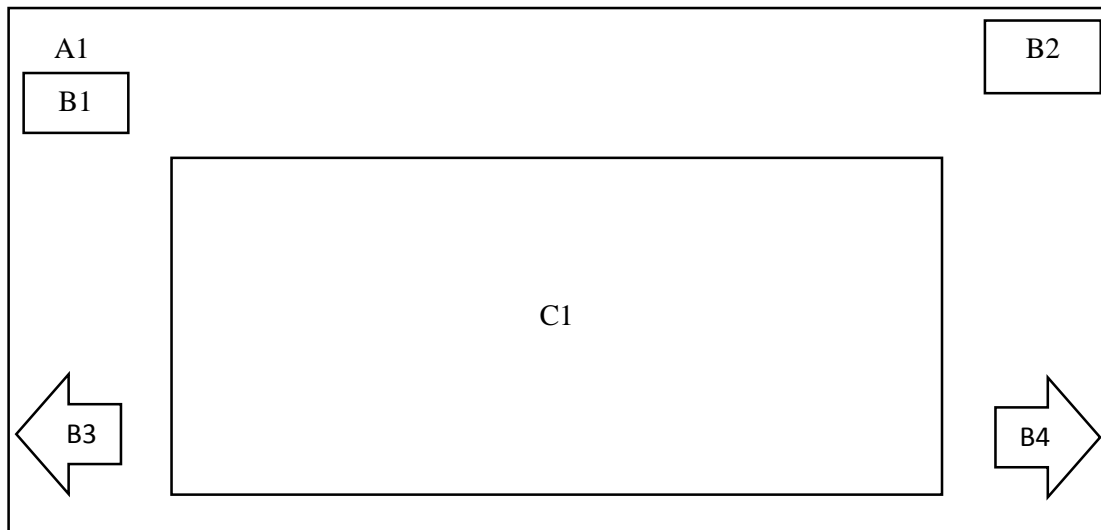


Figure 3-3-F9 Listening Test Page

Label	Description
A1	Background of the courseware.
B1	“Home” button will link to the Home Page.
B2	“Sound” button will play and mute the sound.
B3	“Back” button will link to the Quiz Page.
B4	“Next” button will link to the next question.
C1	Display the quiz question for users.

No of Storyboard	10
Title of The Project	Multimedia Courseware for Learning Japanese Language Level 1
Page Name	Game Page
Internal Link Page	Home Page
Description	This page will allow users to play game.

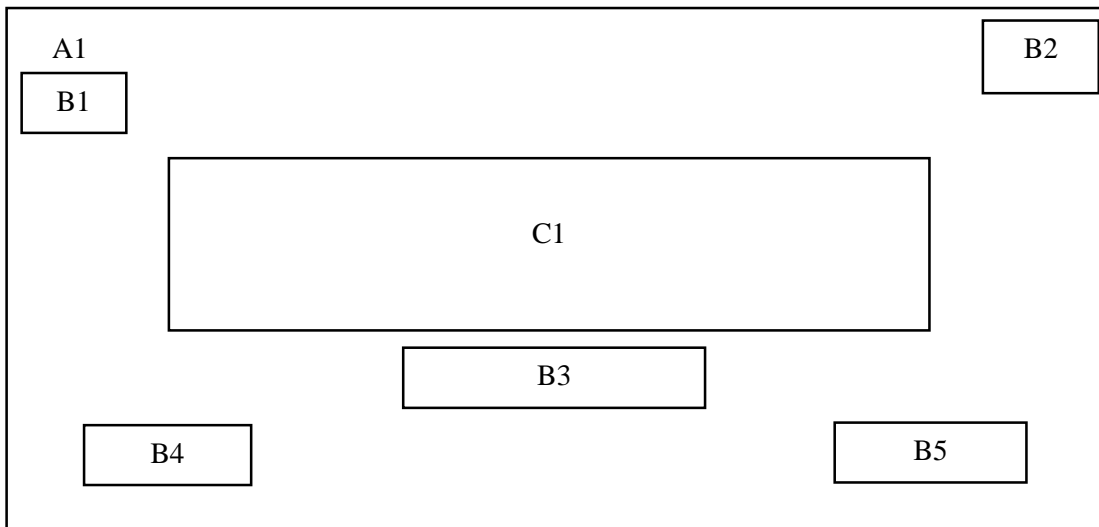


Figure 3-3-F10 Game Page

Label	Description
A1	Background of the game page.
B1	“Home” button will link to the Home Page.
B2	“Sound” button will play and mute the sound.
B3	“Start” button will start the game.
B4	“Help” button will provide some guideline to teach users play the game.
B5	“Exit” button will go back to Home Page.
C1	Display the title of the game.

No of Storyboard	11
Title of The Project	Multimedia Courseware for Learning Japanese Language Level 1
Page Name	Dictionary Page
Internal Link Page	Home Page
Description	This page will allow users to search the meaning of the words.

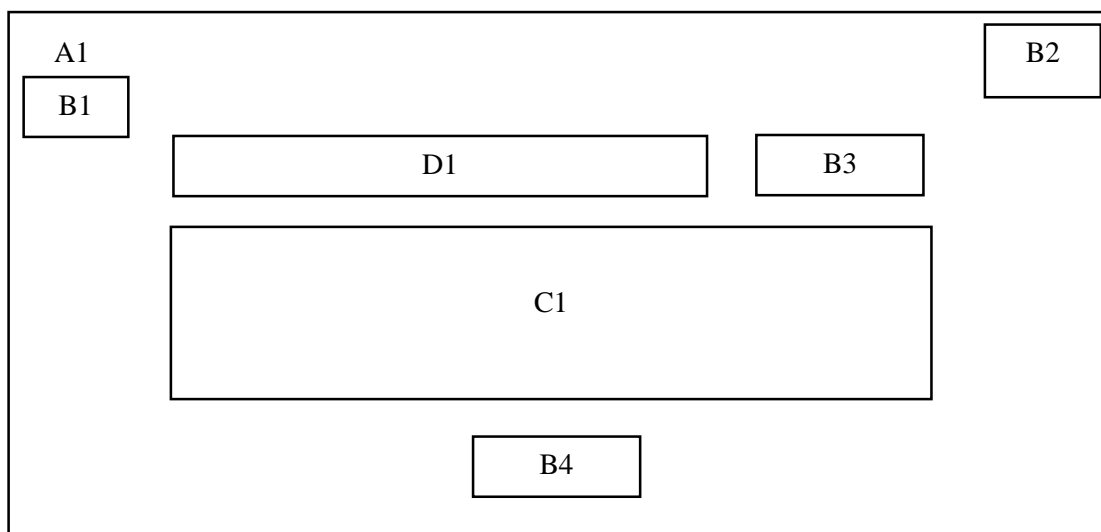


Figure 3-3-F11 Dictionary Page

Label	Description
A1	Background of the courseware.
B1	“Home” button will link to the Home Page.
B2	“Sound” button will play and mute the sound.
B3	“Search” button will search the words.
B4	“Clear” button will clear all the thing.
C1	Display the title of the game.
D1	Allow users to enter the Japanese word which they want to search.

3.4 Multimedia Component

Before the author start to develop the multimedia courseware, author have to create and gather all the required multimedia. Therefore, various type of application were used to create and gather all the required multimedia elements.

3.4.1 Process of Editing Picture

The author search the picture online and download it which will suitable to use in the proposed multimedia courseware. The picture downloaded from Internet have to be edited before import to the proposed multimedia courseware.

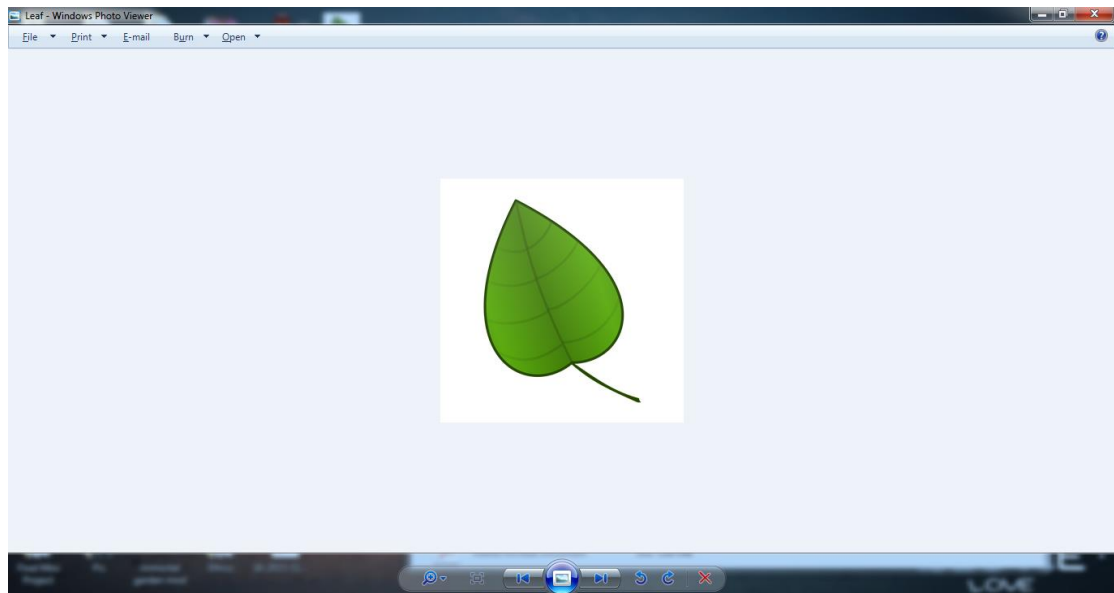


Figure 3-4-1-F1 Picture of leaf

CHAPTER 3 SYSTEM DESIGN

After that, the author will edit the picture of leaf using Adobe Photoshop CS6 to cut and edit the background become transparent. First, the author will use Quick Selection Tools to cut the leaf.

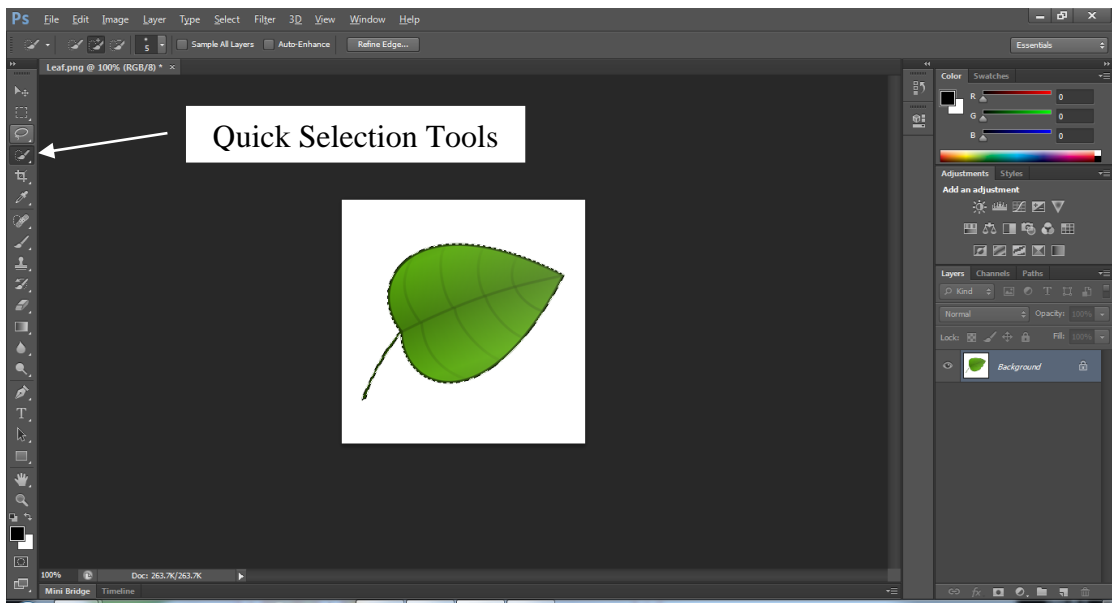


Figure 3-4-1-F2 Leaf cutting

After that, the author will open a new file, set the background become transparent and paste the leaf at the new file.

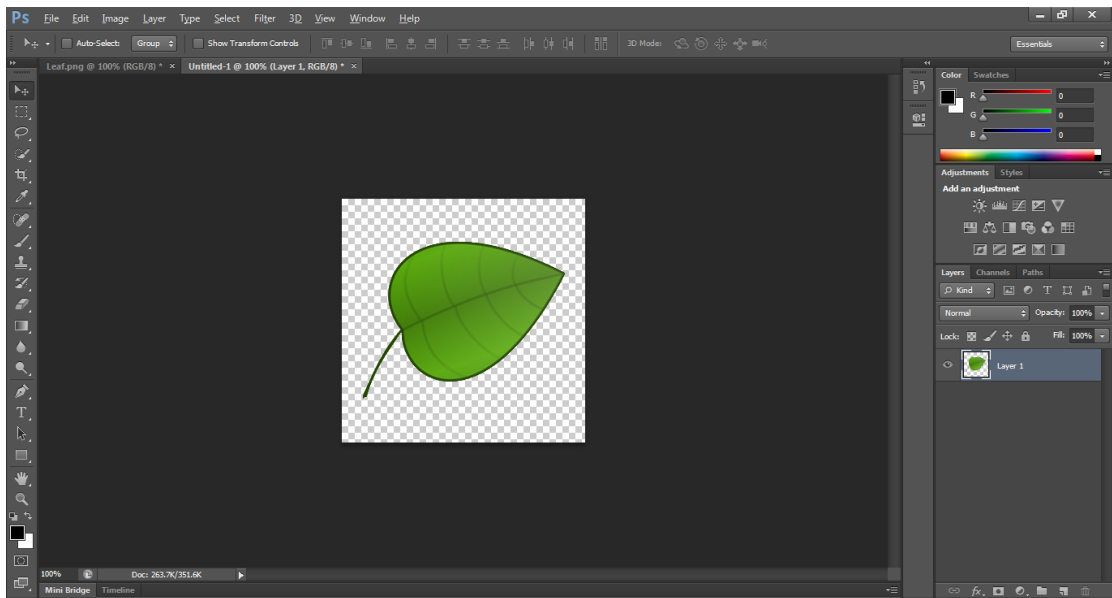


Figure 3-4-1-F3 New file opened, background transparent and leaf pasted

After the picture finished edited by the author, all the pictures will save as PNG format so that the pictures will in transparent background.

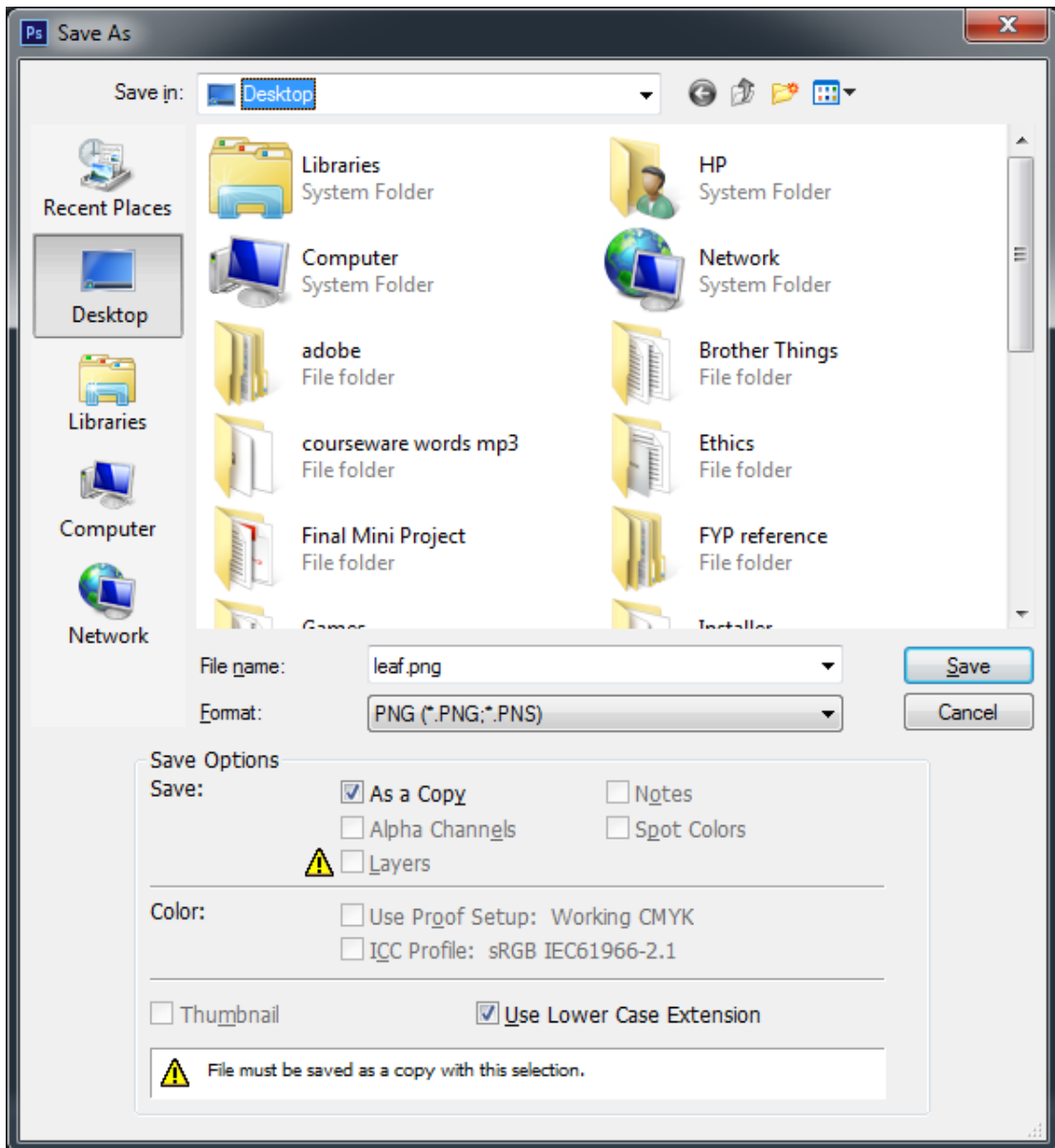


Figure 3-4-1-F4 File saved in PNG format

The author will import the picture to the Adobe Flash once the picture finished edited.

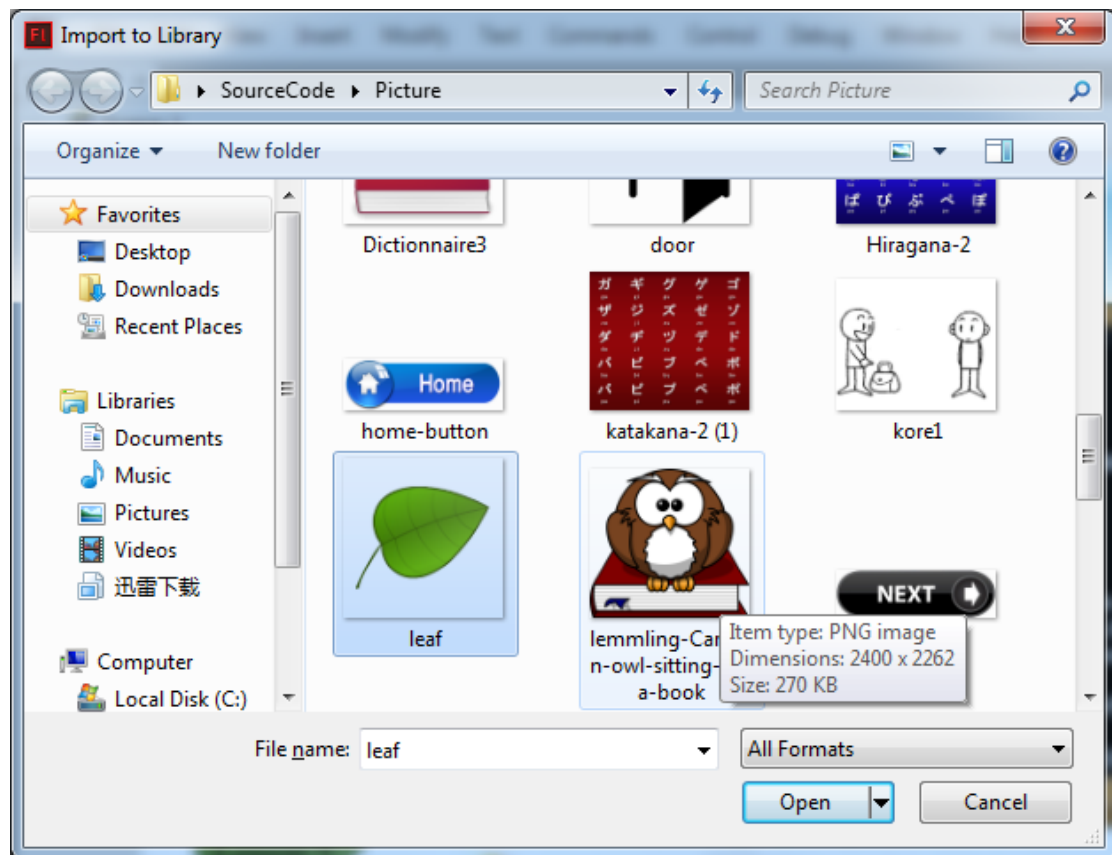
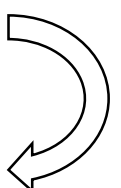
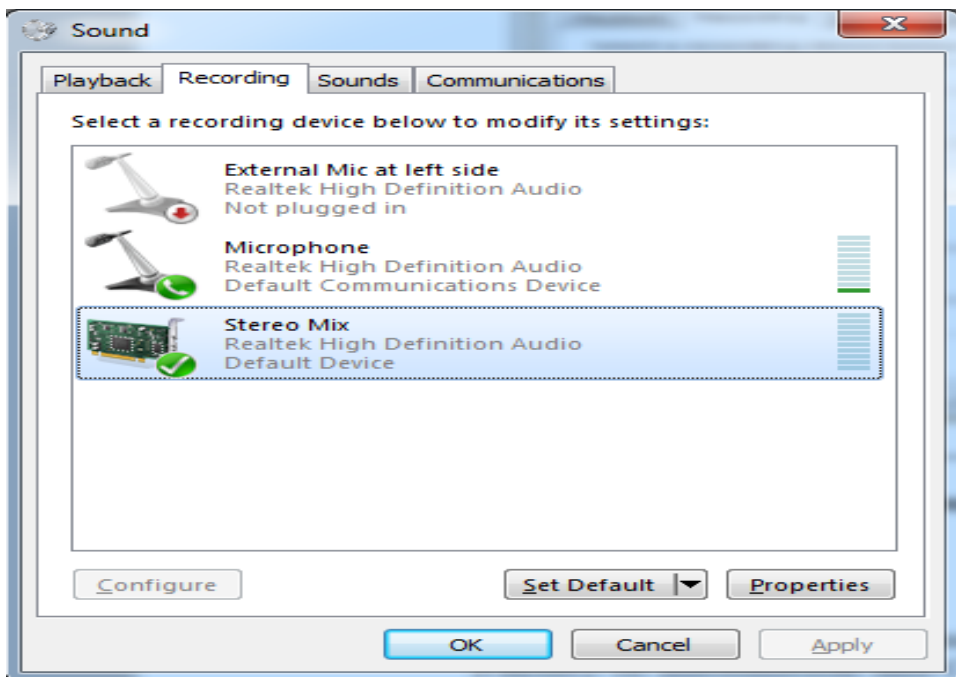
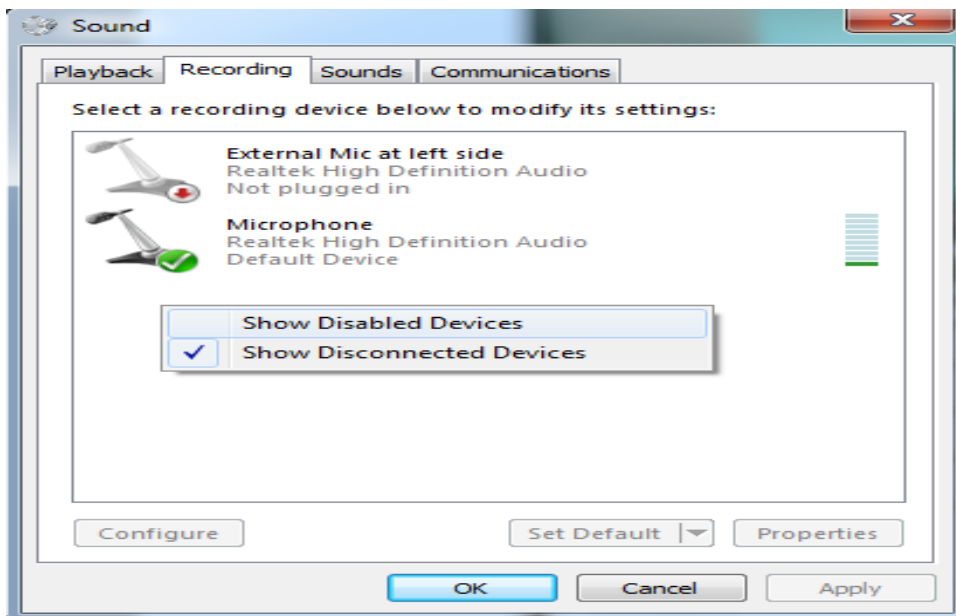
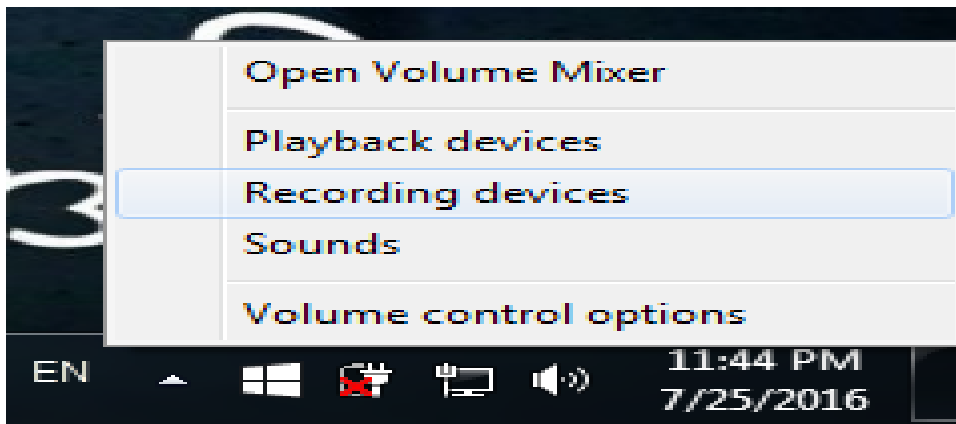


Figure 3-4-1-F5 Import leaf into the Adobe Flash

3.4.2 Process of Creating Sound

Sound is require and vital to the proposed multimedia courseware. The author will teach the universities' students learn Japanese language level 1 more easily and need the sound as a background music to attract students. First, the author use sound recorder which is build in at the computer to record the sound from internal computer. Before record the sound, the author have to adjust the setting of sound.

The author right click on the Speaker icon and choose Recording Devices. After that, right click, choose Show Disable Devices, choose Stereo Mix and set it as default. The author can start to record Google Translate's voice after finish to adjust the setting by using sound recorder.



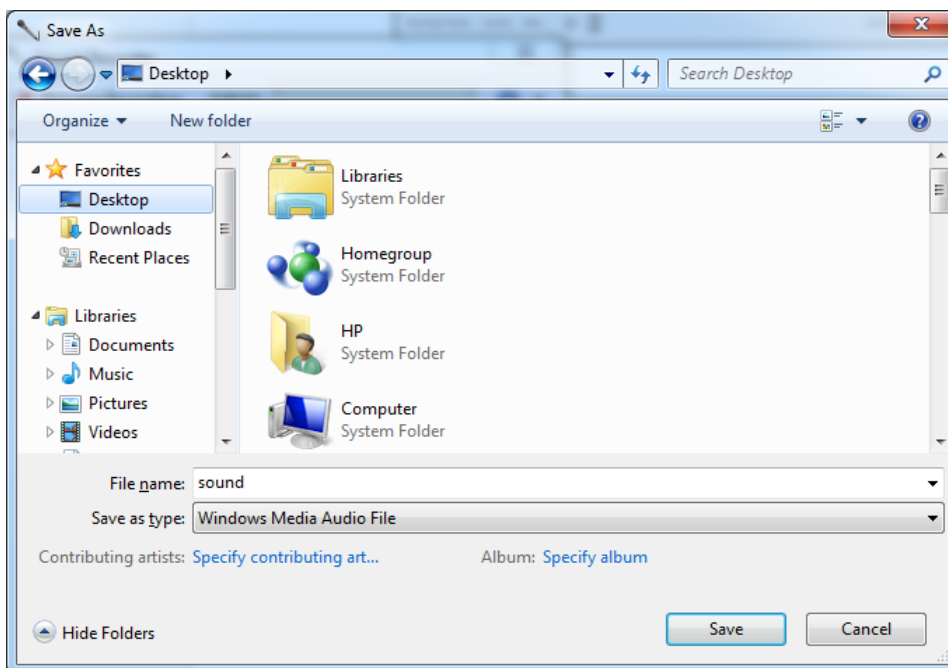
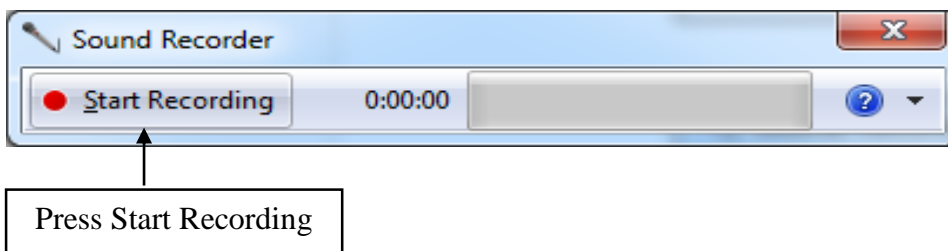
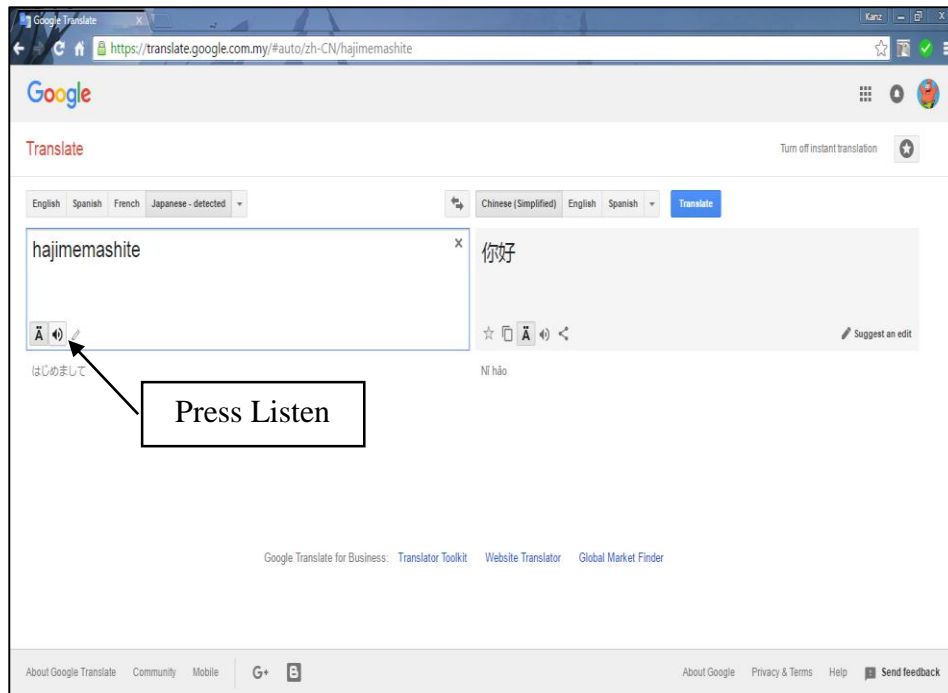
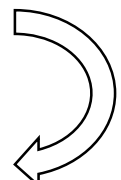
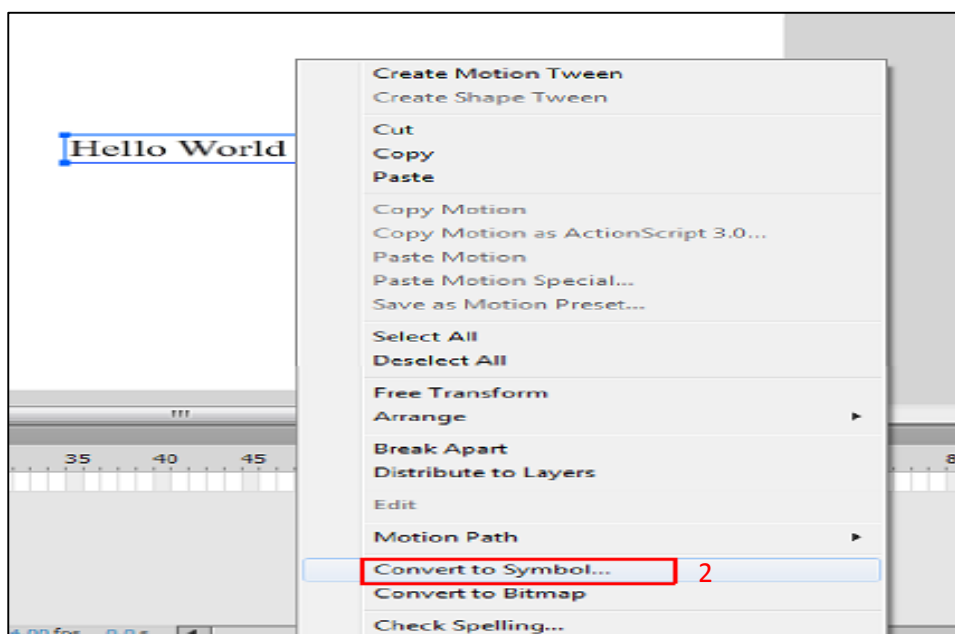
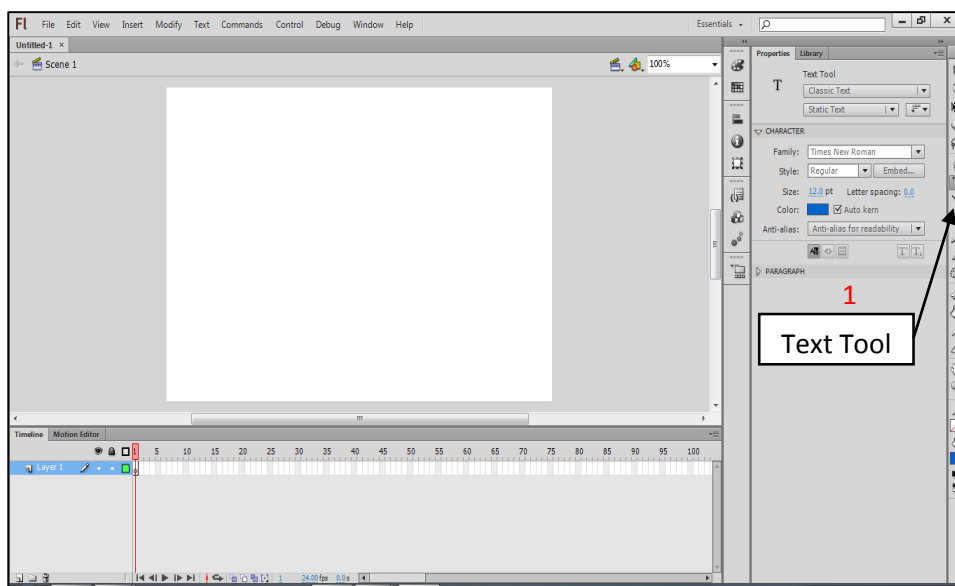


Figure 3-4-2-F1 Process of creating sound

3.4.3 Process of Creating Button

Button is very important in the process of developing multimedia courseware since button will navigate the users to another page or function and continue the process of learning. If a courseware do not have a button, it may become a big problem. Therefore, the author was created a lot of button that can navigate the users to some specific page or function. First, select the Text Tool to create a text box and type a word such as Hello World. After that, right click the word and select “Convert to Symbol”, then it will popup a setting. The author have to enter the name of button and select the type as button and click ok to complete it. As the last step, the author have to enter the instance name to link the button to some function.



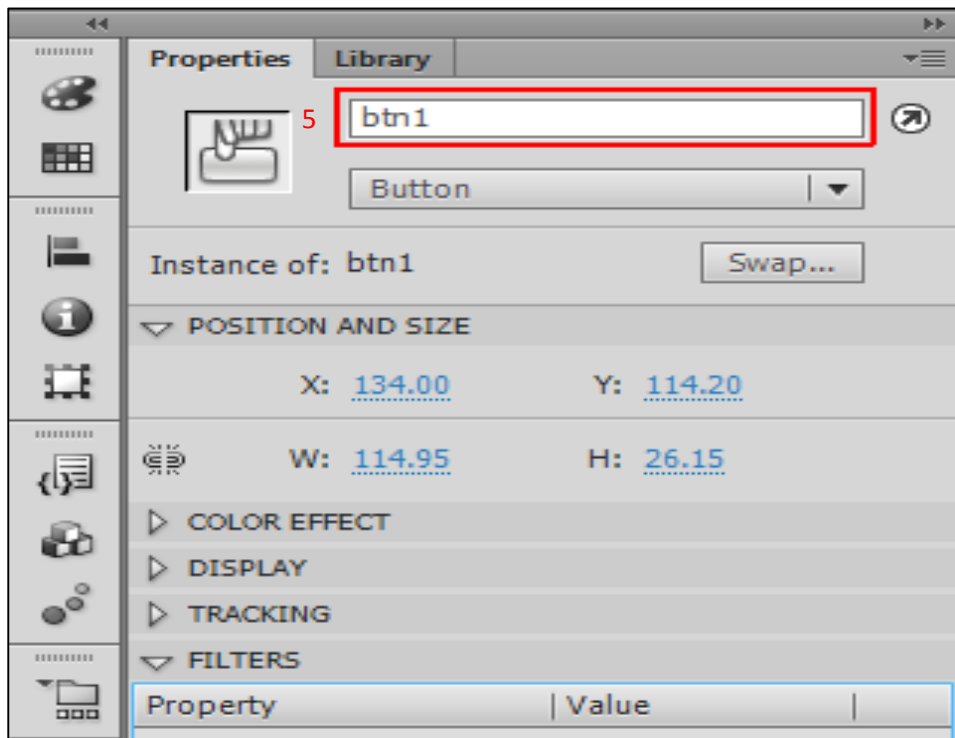
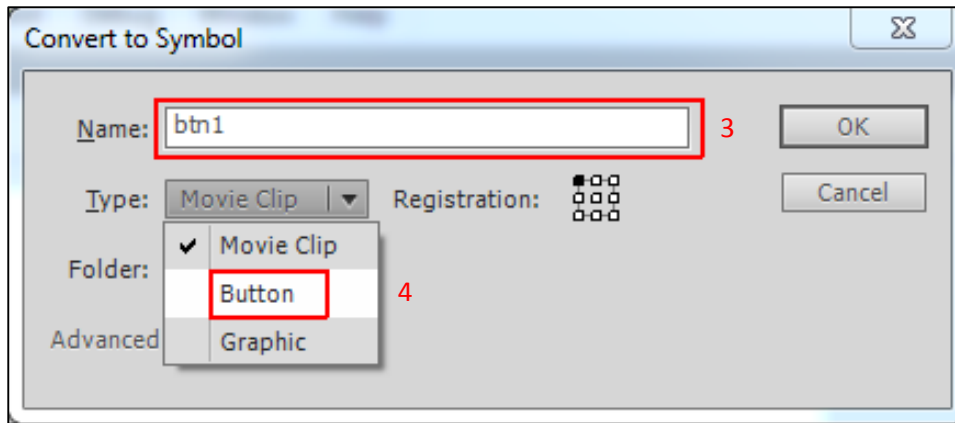
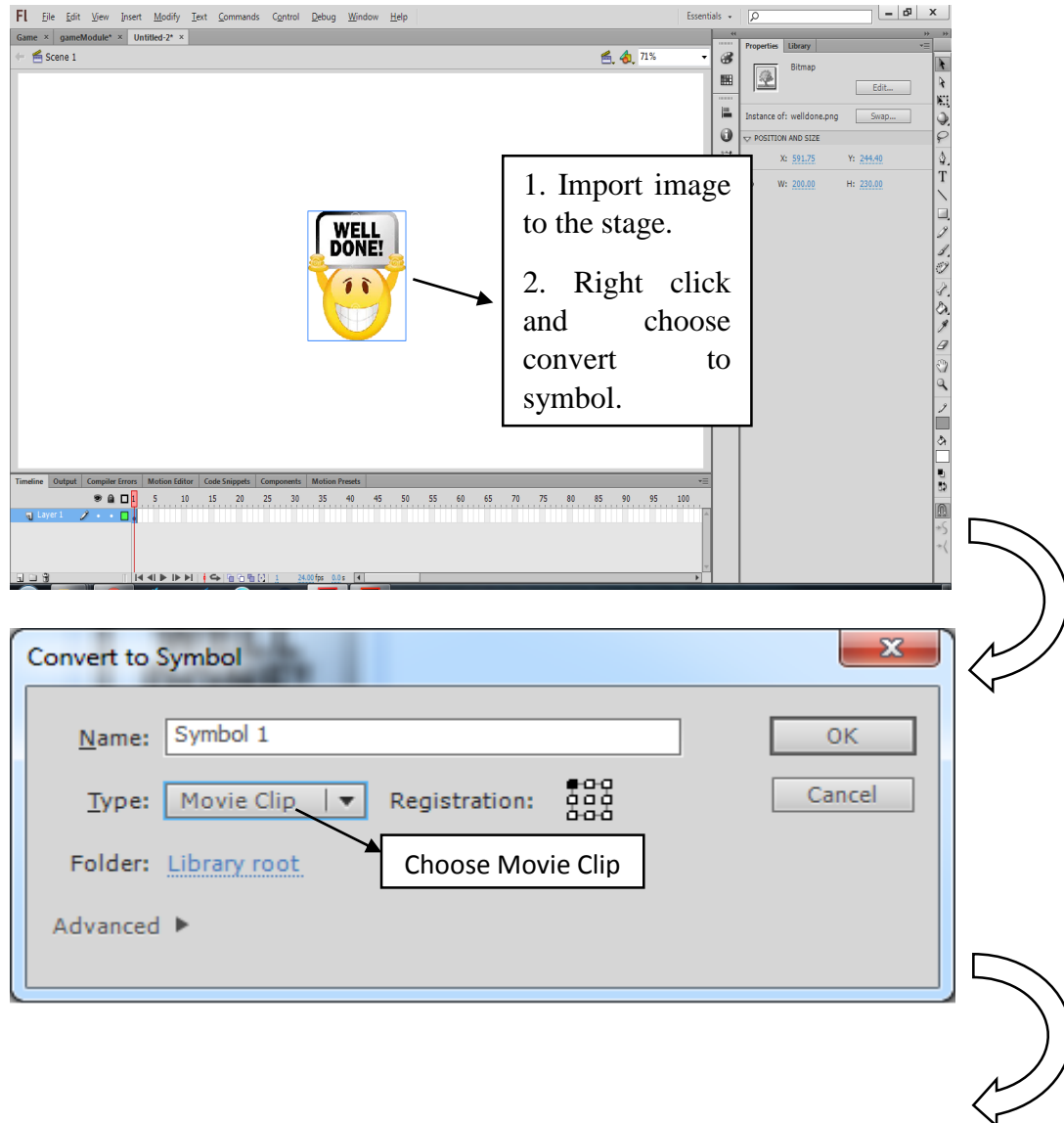


Figure 3-4-3-F1 Process of creating button

Label	Description
1	Select Text Tool
2	Draw a text box, Enter Hello World and right click it to select “Convert to Symbol”
3	Enter the name of button
4	Select the type as button
5	Enter the instance name to link the button to some function

3.4.4 Process of Creating and Editing Animation

Animation is different from image and graphic which image and graphic are static but animation is dynamic. Animation will attract the students and make them more interesting to use the courseware to learn Japanese language. The author use Adobe Flash Professional CS6 to develop the animation.



CHAPTER 3 SYSTEM DESIGN

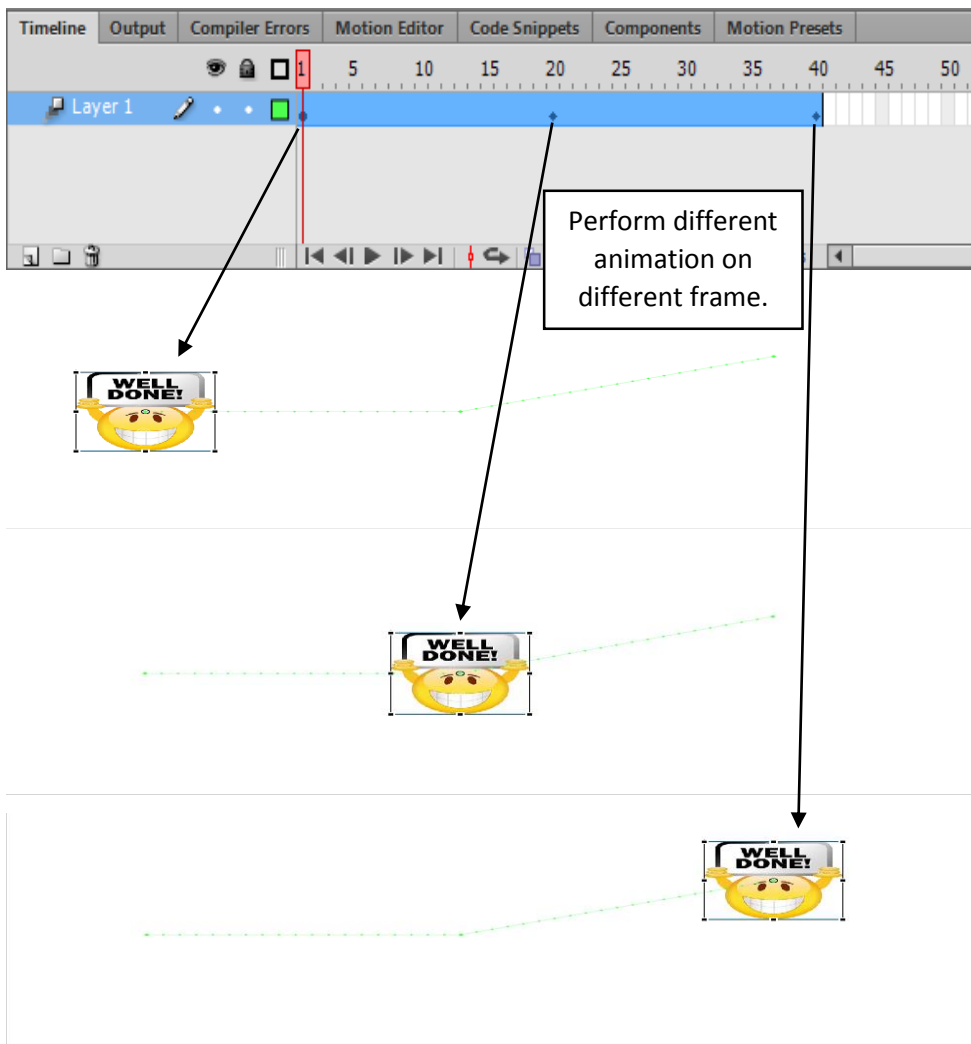
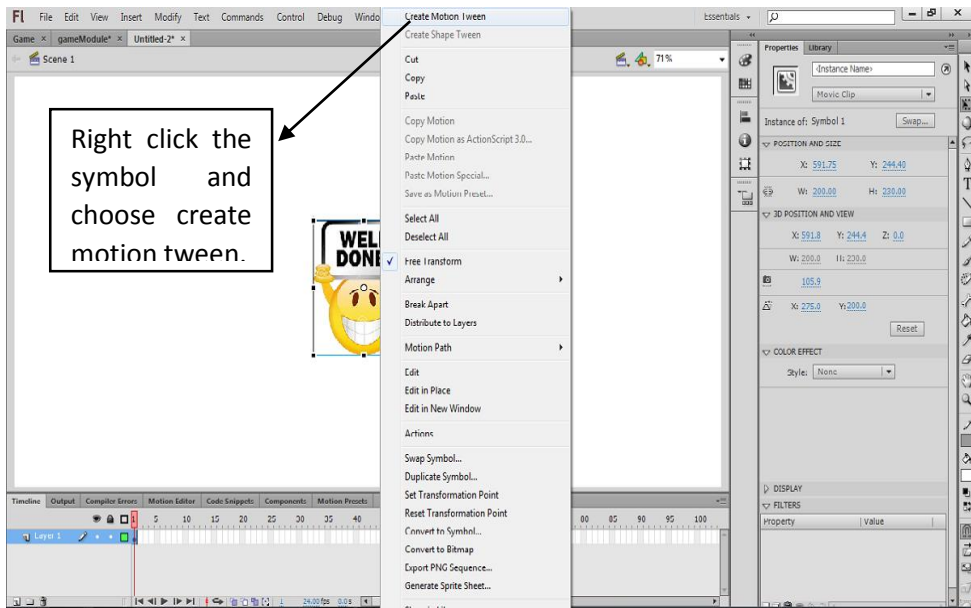
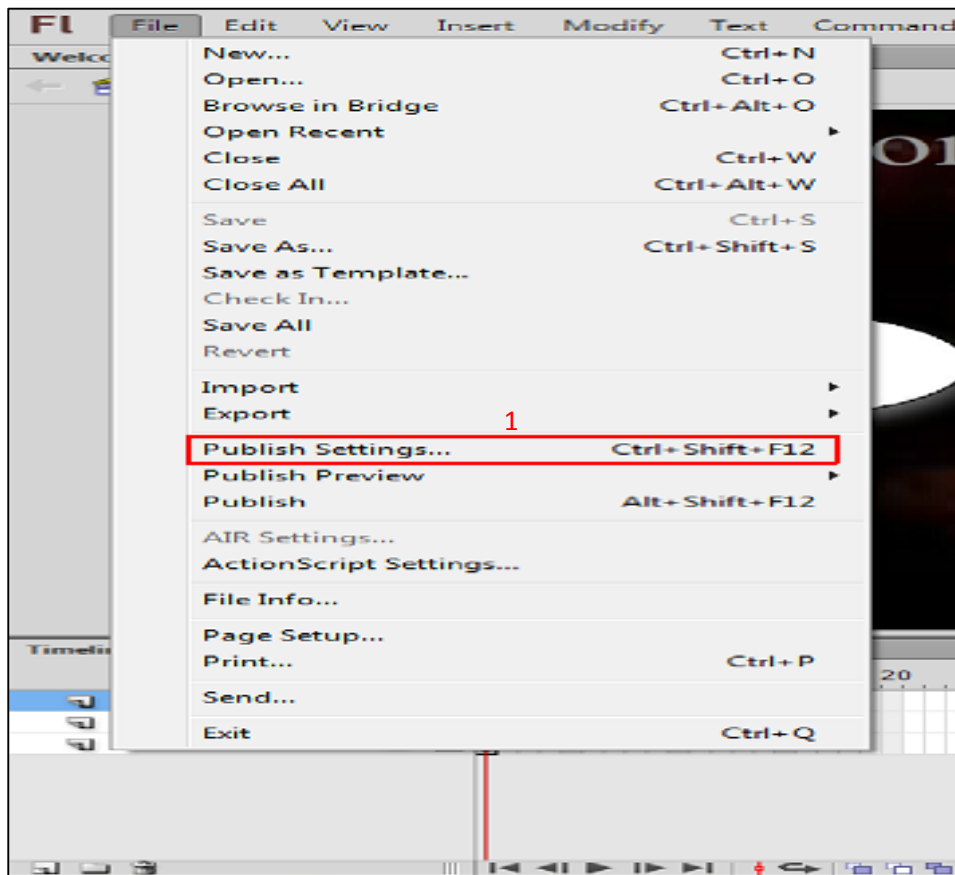


Figure 3-4-4-F1 Process of creating animation

3.4.5 Process of Publishing System

At the last, the author will publish the final system into EXE format which can be executed under Windows Operating System using Adobe Flash CS6. Next, the Final Multimedia Courseware will be distributed to the target audience. The author will propose to the universities' students and give them use the courseware for learning Japanese language level 1.



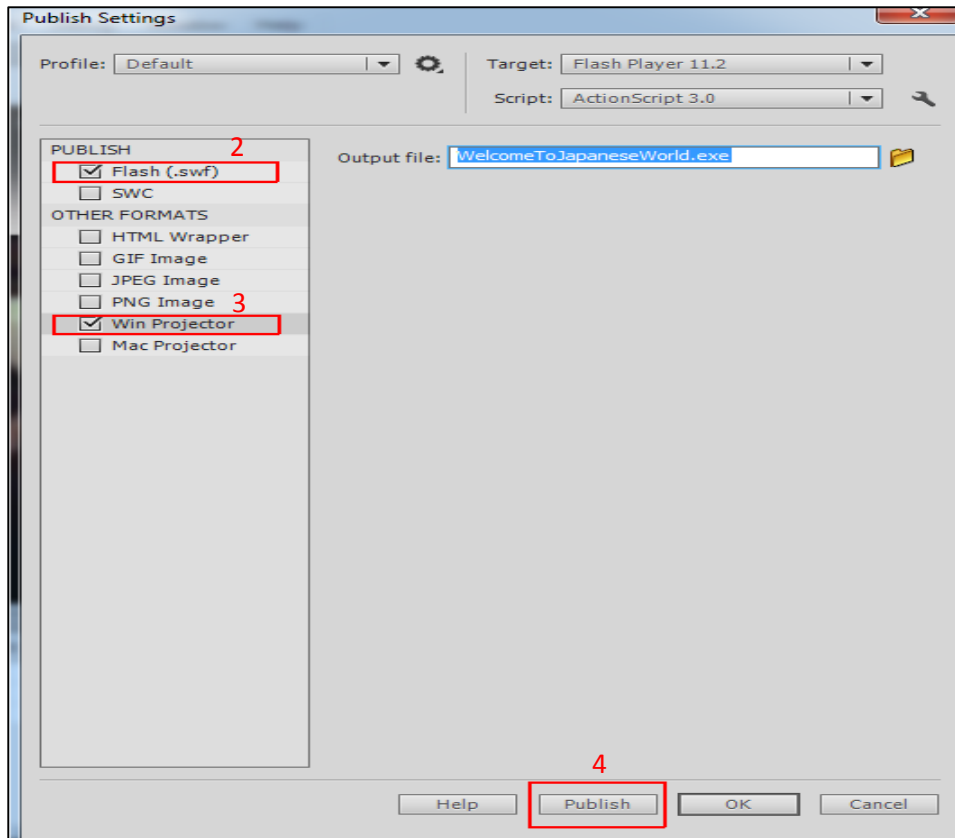


Figure 3-4-5-F1 Process of publishing system

Label	Description
1	Click on Publish Settings to configure settings before publishing final system
2	Choose the Flash which will publish as SWF file format.
3	Choose the Win Projector which will publish as EXE file format.
4	Click on Publish to start publishing final system



Figure 3-4-5-F2 Type of Final System (EXE format)

4.0 Methodology

4.1 ADDIE Model

ADDIE Model is an approach use by instructional designers, developers and trainers to create the course materials. ADDIE model is a shortcut of each first character of the phase which are Analysis, Design, Development, Implementation, and Evaluation. These processes represented a flexible guideline for create interactive multimedia courseware. (Castagnolo 2008; Rommel 2014; TrainingIndustry.com n.d.)



Figure 4-1-F1 ADDIE Model caption here (Abromitis.com n.d.)

4.1.1 Analysis

The analysis phase is the most important phase in the ADDIE. In this phase, the author will identify the main target for the courseware. Thus, the author will identify the problem of existing multimedia courseware and the problem of traditional teaching style. Besides that, the author will identify whether the students want to use the courseware to learn Japanese or use the textbook to learn. In addition, the objective will be established to solve the existing problem. The author also will identify and analysis the need of the students. The analysis is conducted by interviews, observations and a survey to identify the need of the students. Furthermore, the author will consider about the timeline for the project.

4.1.2 Design

In this phase, the author will going to develop a prototype of the courseware for learning Japanese language to achieve the objective and the need of the students. The author also will determine the user interface is user friendly for the students to use it easily. In addition, the author will define the graphic design and the content which is focus on animation so that can attract the students and increase their motivation to use it and learn Japanese. The students can learn easily since the content was animation and more graphic rather than full of words. In addition, the author has to design the storyboard in this phase.

4.1.3 Development

Once the previous two phases have been carried out, the author can develop the courseware following the prototype. The author will import all the multimedia elements into the courseware which is animation, graphics, text, audio and video to make the courseware more interesting. In this five multimedia elements, animation is the most important. Animation will be used to attract and motivate the students to learn Japanese language, it will not make students get bored. Besides, the text will not be so many to avoid students get bored and add in some colour for the text to attract the students. The video also is important because when the students feel bored, they can watch the video and also can learn the Japanese language. In addition, the audio will use as the background music, sound effect and teach the students to pronounce the Japanese language.

4.1.4 Implementation

In this phase, the author will go to deliver the material to the students and let them test the courseware to find any error while they are using the courseware. During this phase, the courseware will be published by the author into executable file format (.exe) for the students easy to use and test it.

4.1.5 Evaluation

In this phase, the feedback will be gathered by the author, measures the courseware is effective for the students to learn the Japanese language and identify what is working and not working. Based on the feedback, the author will solve the problems which may exist in the courseware and make the adjustments, improvements and corrections for the courseware. The author also will measure the courseware have satisfy and accomplish the goals or not.

4.2 Reason of using ADDIE Model

The reason of using ADDIE Model to develop the courseware because ADDIE is a generic and step-by-step framework. The model is appropriate for instructional designers, developers and trainers to create the course material. By using ADDIE, it can ensure a disorganized and unstructured way will not occur in the course development. It also can ensure the users will accomplish and bring about the goals and objectives of the course.

Thus, the developer can develop the product based on the needs of the users after the users' requirements had been collected and analyzed. ADDIE Model also will ensure the design and development of course materials is performed properly for the users. In addition, the evaluation of effectiveness of the training program will be done and make improvement from the feedback which is given by the users. (Castagnolo 2008; Lai 2013)

4.3 Development Tools

4.3.1 Adobe Director

Adobe Director will be used to create graphics, animation and video for the multimedia courseware of the project. It also used to arrange and combine all single modules into the courseware. Adobe Director also supports many different images, audio and video formats. It contains a scripting language called Lingo.

4.3.2 Adobe Flash

Adobe Flash will be used by the author to develop the proposed multimedia courseware. Since Adobe Flash is a dynamic multimedia program used for develop animation, vector graphics and games in this project. In addition, created product can be viewed in Adobe Flash Player. It contains a scripting language called ActionScript.

4.3.3 Adobe Photoshop

Adobe Photoshop will be used to edit the image become better for the courseware design. It provides many special effects to improve and enhance picture. Some problems also can solve by using Adobe Photoshop such as image blurring.

4.3.4 Voice Recorder

Sound Recorder is a build in voice recorder in the computer that will be used to record the sound from the Google Translate and import to the multimedia courseware.

4.3.5 Xilisoft Audio Maker

Xilisoft Audio Maker will be used by the author since it allows author to edit and convert audio. Xilisoft Audio Maker able to convert the format of audio into suitable format that can import to the Adobe Director.

4.3.6 Snipping tool

Snipping tool is a build in software in the computer that will be used to cut the image and edit it.

4.4 Requirement Specification

4.4.1 User Requirement

User requirement is a process that used to understand and specifies what the user expects from the system. The method that used by the author to collect the information is questionnaire as fact finding and observation that observe existing multimedia courseware. The collected information can used to identify the features and functionality of the system that must be satisfy the needs of the user. On the other hand, user requirement can save the time before the author start to develop the system since the author was knew the needs of the user.

4.4.2 Functional Requirement

Functional requirement is define what the system can do and the function it should be perform in certain condition. These are the functional requirement proposed multimedia courseware for learning Japanese language.

- i. User can learn Japanese language in learning module.
- ii. User can do tutorial and exercise in tutorial module.
- iii. User can evaluate their understanding of Japanese language in quiz module.
- iv. User can play and learn Japanese language in game module.
- v. User can learn and search the meaning of the Japanese words in dictionary module.

4.4.3 Non-Functional Requirement

Non-functional requirement is a requirements that define the system must meet the specific criteria and measurement. These are the non-functional requirement proposed multimedia courseware for learning Japanese language.

- i. Performance
 - The response time of the system shall be fast and no delay.

- ii. Ease of use
 - The system shall be simple and easy to use so that the students can use the system easily.

- iii. Reliability
 - The system shall be reliable and no error occur when the students using the system.

4.4.4 System Requirements

4.4.4.1 Hardware Requirements

Table 4-4-4-1-T1 Table of Hardware Requirements

Hardware	Specification
Processor	- 1 GHz Processor or higher
RAM	- At least 1 GB of RAM
Sound Card and Speaker	- 32-bit sound card or higher
Graphic Card	- 32-bit color or higher
Free Disk Space	- At least 40 MB of free disk space

4.4.4.2 Software Requirements

Table 4-4-4-2-T1 Table of Software Requirements

Software	Specification
Operating System	- Windows XP, 7, 8 or 10 - 32-bit or 64-bit Operating System
Adobe Flash Player	- Adobe Flash Player 10 or higher
Adobe Reader	- Adobe Reader 7 or higher

4.5 Verification Plan

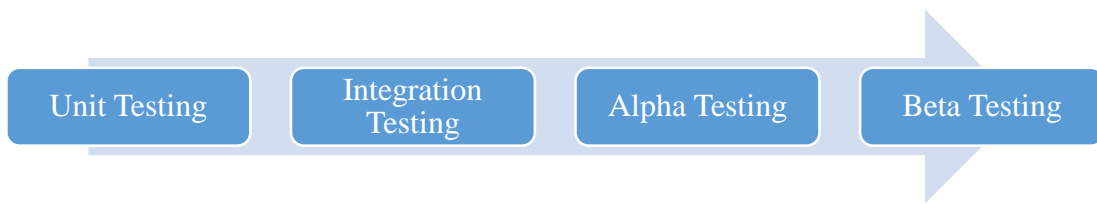


Figure 4-5-F1 Verification plan

Author will use some testing to test the system is run probably and fixed the errors. First of all, the author will use unit testing to test the system. Unit testing is one kind of testing which is used to test each units of source code performed by the author. During the unit testing, author will fixed the errors and bugs immediately if any errors and bugs were found in any part of the system, to make sure the system can run probably. (Tutorialspoint 2014)

The second testing is integration testing. Integration testing is used to test integration or interfaces between different parts of the system and tested as a groups. It is important to the author because it can discover problems with the interfaces among the system component before any problem or trouble occurs. (Rouse 2008; ISTQB Exam Certification 2015)

Besides that, author also use alpha testing and beta testing to improve the proposed multimedia courseware. Alpha testing is one kind of testing to test an application when development is about to complete. Alpha testing will take places at author's sites and involves testing of the operational system by internal staff. It includes 2 phases. In the first phase, the system is tested by in-house developers to catch bugs quickly. In the second phase, the system is hand over to the QA staff. During alpha testing, author can observe the user and note the problems. (ISTQB Exam Certification 2015)

Beta testing is performed after alpha testing has been performed successfully. Beta testing is also known as pre-release testing. In the beta testing, a sample of the intended audience tests the application. Beta testing will take places at customer's site. Author will sends the system to some users who install it and use it under real-world. During beta testing, author can discover any issues from the user's perspective. (ISTQB Exam Certification 2015)

4.6 Implementation Issues and Challenges

The major issues and challenges in this proposed multimedia courseware for learning Japanese was the user interface of the system. Some user interface of the existing multimedia courseware was simple and unattractive for the users. Therefore, author tried to compare with other existing multimedia courseware to improve the user interface of the system.

Besides that, author did not have any experience and knowledge in ActionScript since the proposed multimedia courseware was developed by using Adobe Flash. Therefore, author was confuse and stuck while develop the proposed multimedia courseware. So, author was used a few week to learn ActionScript from the internet to develop the proposed multimedia courseware.

CHAPTER 4 METHODOLOGY

4.8 Project Timeline (Final Year Project 2)

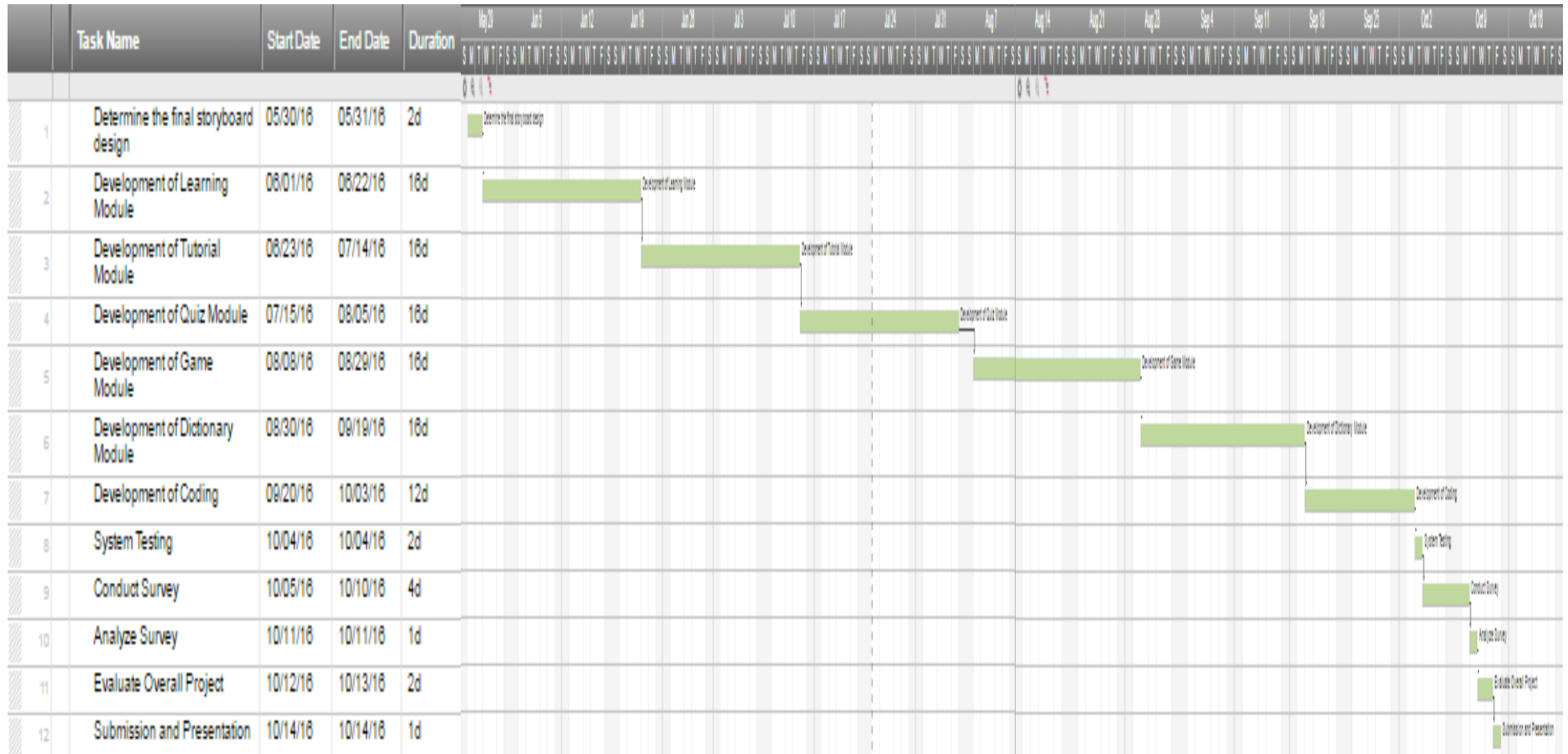


Figure 4-8-F1 Gantt chart for Final Year Project 2

5.0 System Implementation

5.1 Screenshot



Figure 5-1-F1 Welcome to Japanese World Page

Label	Description
1	An animation word that will keep shining to attract the users.
2	An animation word that will display the “Hello! =)” word one by one.
3	Start button will change color when mouseover. When users click on the Start button, it will proceed to Main Menu Page.

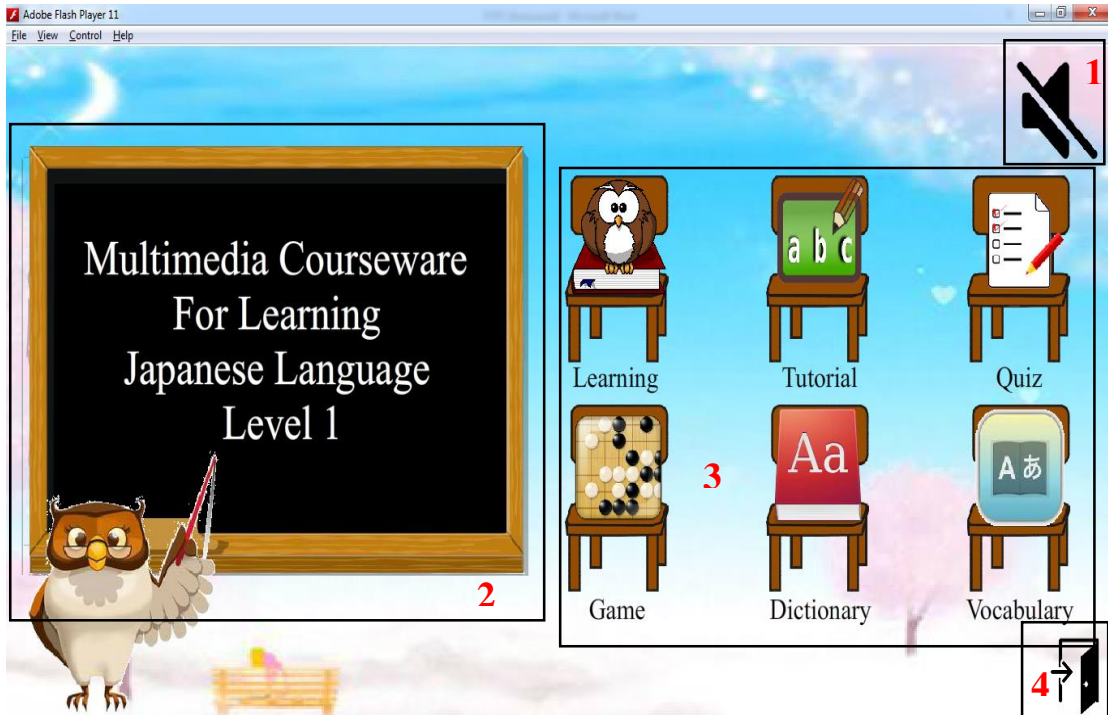


Figure 5-1-F2 Main Menu Page

Label	Description
1	When mouseover, the Sound button will become larger. When users click on Sound button, it will mute the background music of current page and will continue to play the background music when users click it again.
2	Title of the courseware.
3	Button of Main Menu Page. Users can click any button to go any page they want to go, such as Learning Page, Tutorial Page, Quiz Page, Game Page, Dictionary Page and Vocabulary Page.
4	Exit button will become larger when mouseover. When users click on the Exit button, it will exit the application.

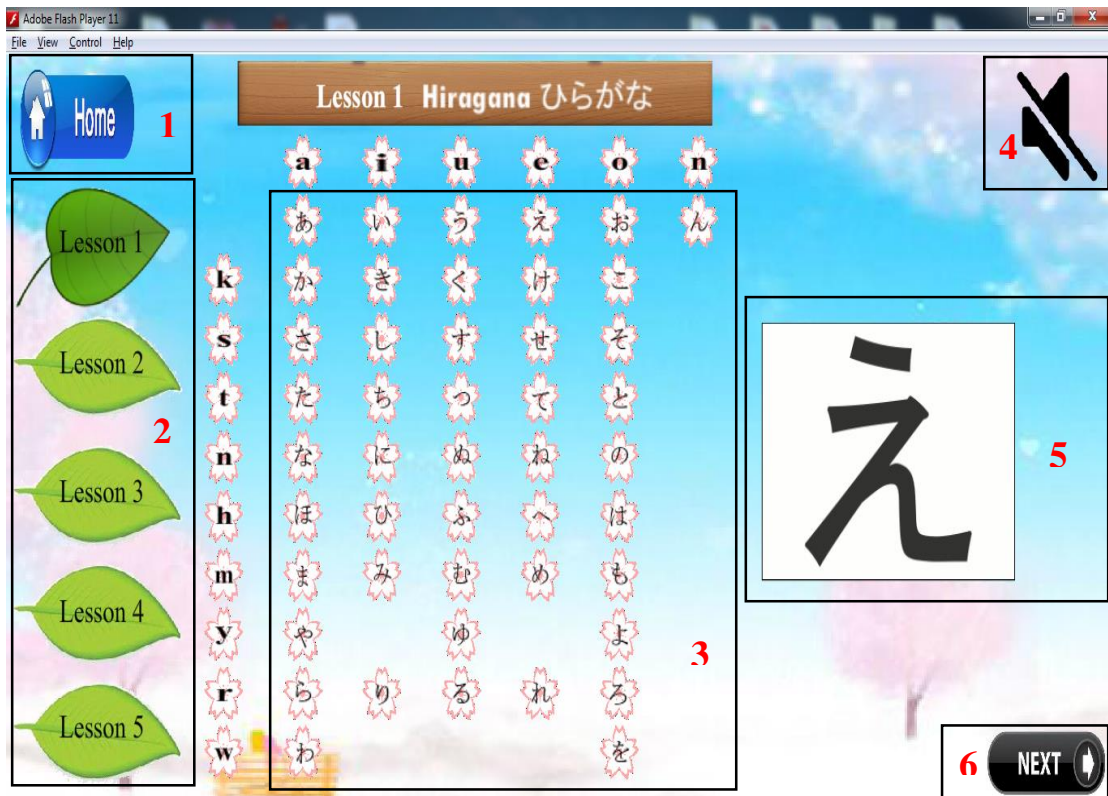


Figure 5-1-F3 Learning Page (1)

Label	Description
1	When mouseover, the Home button will become larger. When users click on Home button, it will proceed to Main Menu Page.
2	A list of Lesson button to let users choose the Lesson they want to learn.
3	A list of button to let users click it, learn the pronunciation of each Japanese alphabet and learn how to write the Japanese alphabet.
4	When mouseover, the Sound button will become larger. When users click on Sound button, it will mute the background music of current page and will continue to play the background music when users click it again.
5	An animation to teach users how to write the Japanese alphabet.
6	When mouseover, the Next button will become larger. When users click on Next button, it will proceed to next page and continue learning.



Figure 5-1-F4 Learning Page (2)

Label	Description
1	When mouseover, the Home button will become larger. When users click on Home button, it will proceed to Main Menu Page.
2	A list of Lesson button to let users choose the Lesson they want to learn.
3	A list of button to let users click it, to learn the pronunciation of each Japanese sentence. The list of button will become larger when mouseover.
4	When mouseover, the Sound button will become larger. When users click on Sound button, it will mute the background music of current page and will continue to play the background music when users click it again.
5	When mouseover, the Next button and Back button will become larger. When users click on Next button, it will proceed to next page and continue learning. While click on Back button, it will proceed to previous page.



Figure 5-1-F5 Learning Page (3)

Label	Description
1	When mouseover, the Home button will become larger. When users click on Home button, it will proceed to Main Menu Page.
2	A list of Lesson button to let users choose the Lesson they want to learn.
3	A list of button to let users click it, to learn the pronunciation of each Japanese word. The list of button will perform different color when mouseover.
4	When mouseover, the Sound button will become larger. When users click on Sound button, it will mute the background music of current page and will continue to play the background music when users click it again.
5	When mouseover, the Next button and Back button will become larger. When users click on Next button, it will proceed to next page and continue learning. While click on Back button, it will proceed to previous page.

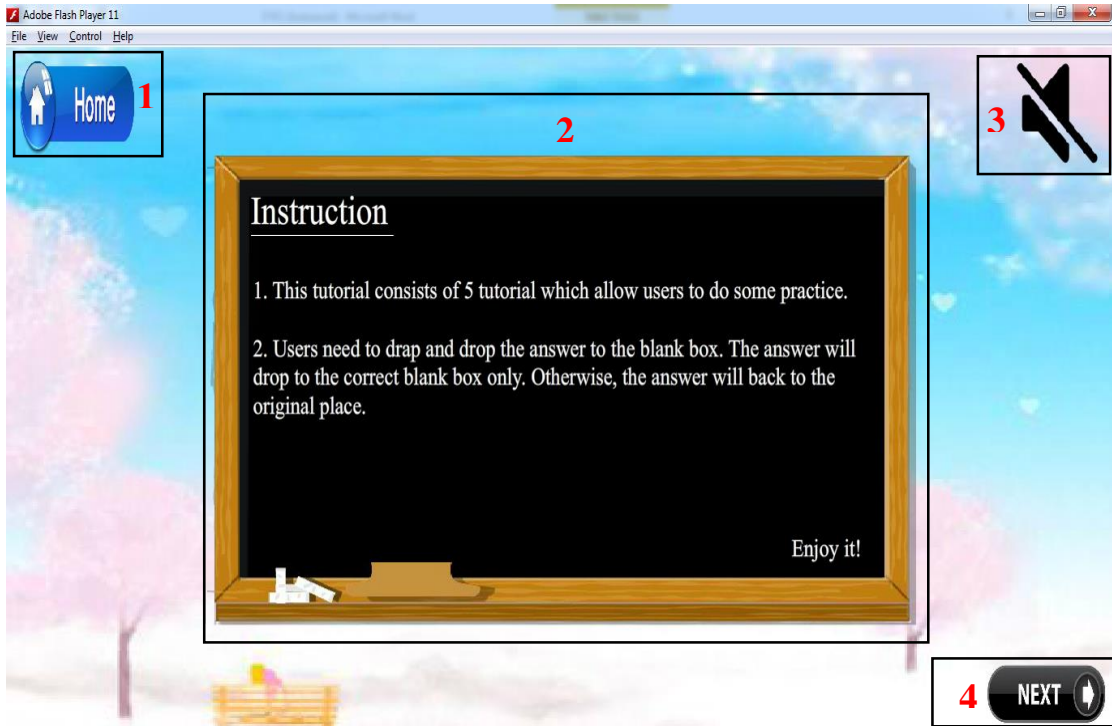


Figure 5-1-F6 Tutorial Instruction Page

Label	Description
1	When mouseover, the Home button will become larger. When users click on Home button, it will proceed to Main Menu Page.
2	An instruction to teach users how to do tutorial.
3	When mouseover, the Sound button will become larger. When users click on Sound button, it will mute the background music of current page and will continue to play the background music when users click it again.
4	When mouseover, the Next button will become larger. When users click on Next button, it will proceed to next page and continue learning.

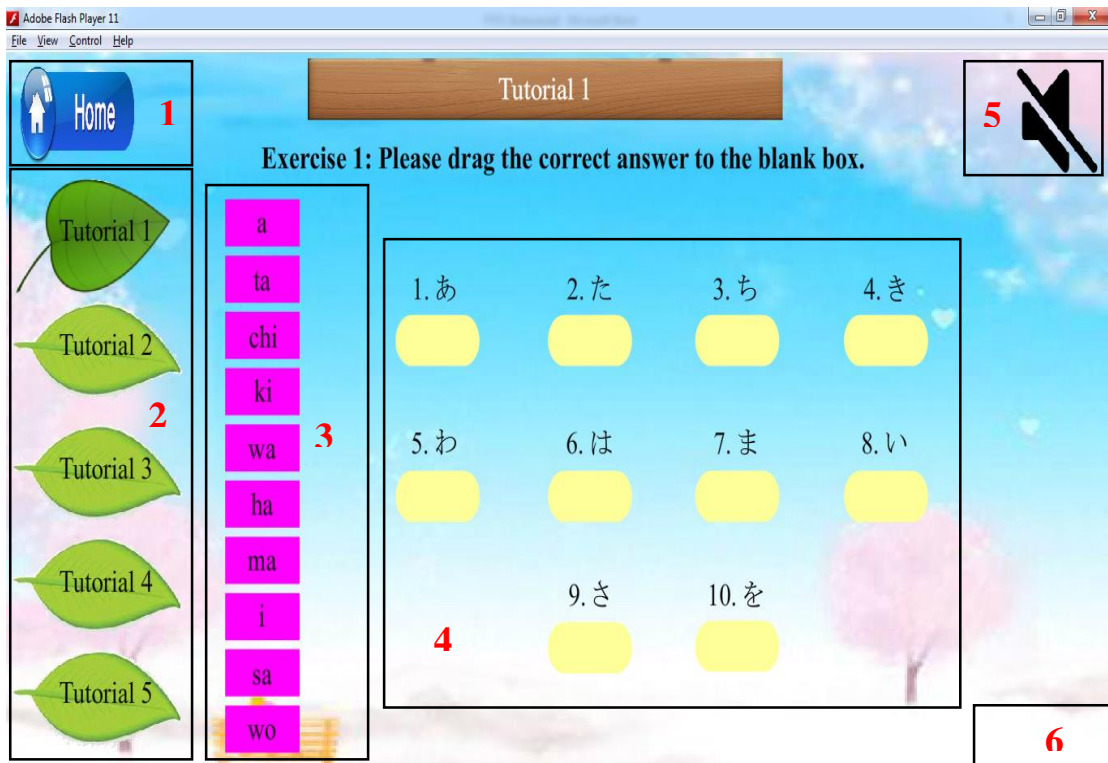


Figure 5-1-F7 Tutorial Page

Label	Description
1	When mouseover, the Home button will become larger. When users click on Home button, it will proceed to Main Menu Page.
2	A list of Tutorial button to let users choose the Tutorial they want to do.
3	A list of object that users can drag the object.
4	A list of box that let users to drop the correct object.
5	When mouseover, the Sound button will become larger. When users click on Sound button, it will mute the background music of current page and will continue to play the background music when users click it again.
6	Next button will appear once users finish the tutorial, otherwise the button will invisible. When mouseover, the Next button will become larger. When users click on Next button, it will proceed to next page and continue tutorial.



Figure 5-1-F8 Quiz Main Page

Label	Description
1	When mouseover, the Home button will become larger. When users click on Home button, it will proceed to Main Menu Page.
2	When mouseover, the Sound button will become larger. When users click on Sound button, it will mute the background music of current page and will continue to play the background music when users click it again.
3	When mouseover, the Writing Test button will become larger. When users click on Writing Test button, it will proceed to Writing Test Page.
4	When mouseover, the Reading Test button will become larger. When users click on Reading Test button, it will proceed to Reading Test Page.
5	When mouseover, the Listening Test button will become larger. When users click on Listening Test button, it will proceed to Listening Test Page.

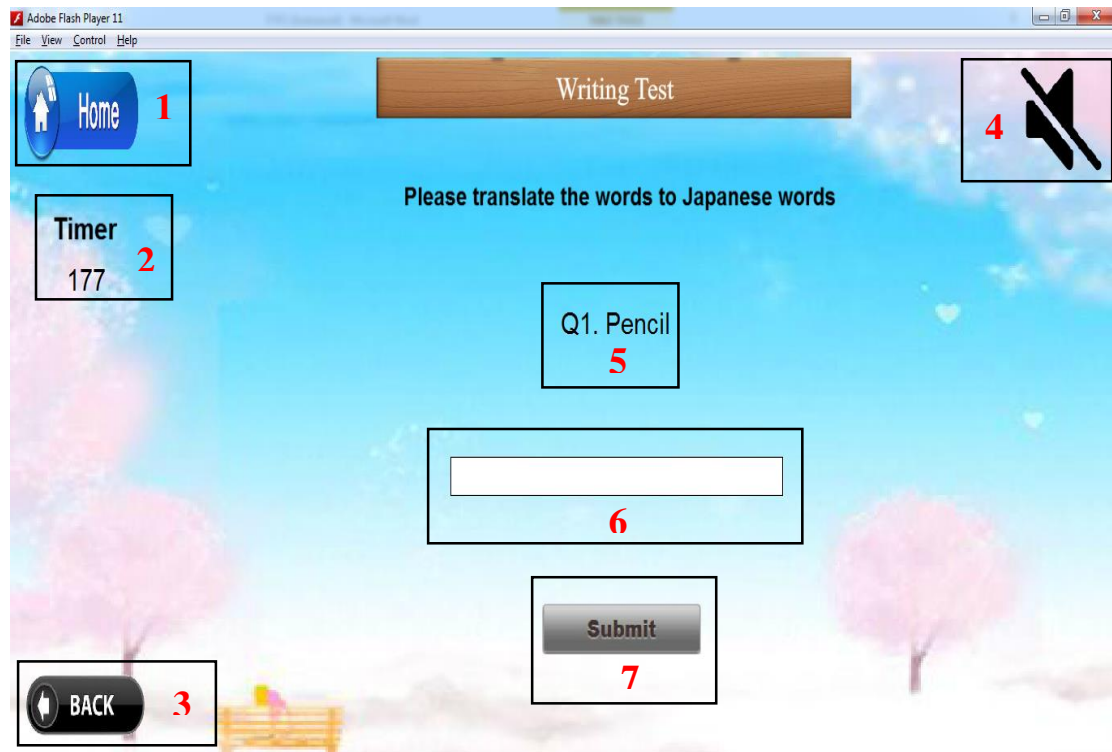


Figure 5-1-F9 Writing Test Page

Label	Description
1	When mouseover, the Home button will become larger. When users click on Home button, it will proceed to Main Menu Page.
2	Used to count down the time. Users have to finish the test before the time end.
3	When mouseover, the Back button will become larger. When users click on Back button, it will proceed to Quiz Main Page.
4	When mouseover, the Sound button will become larger. When users click on Sound button, it will mute the background music of current page and will continue to play the background music when users click it again.
5	Display the question.
6	Let users to type the answer.
7	When mouseover, the Submit button will become larger. When users click on Submit button, it will submit the answer and proceed to next question.

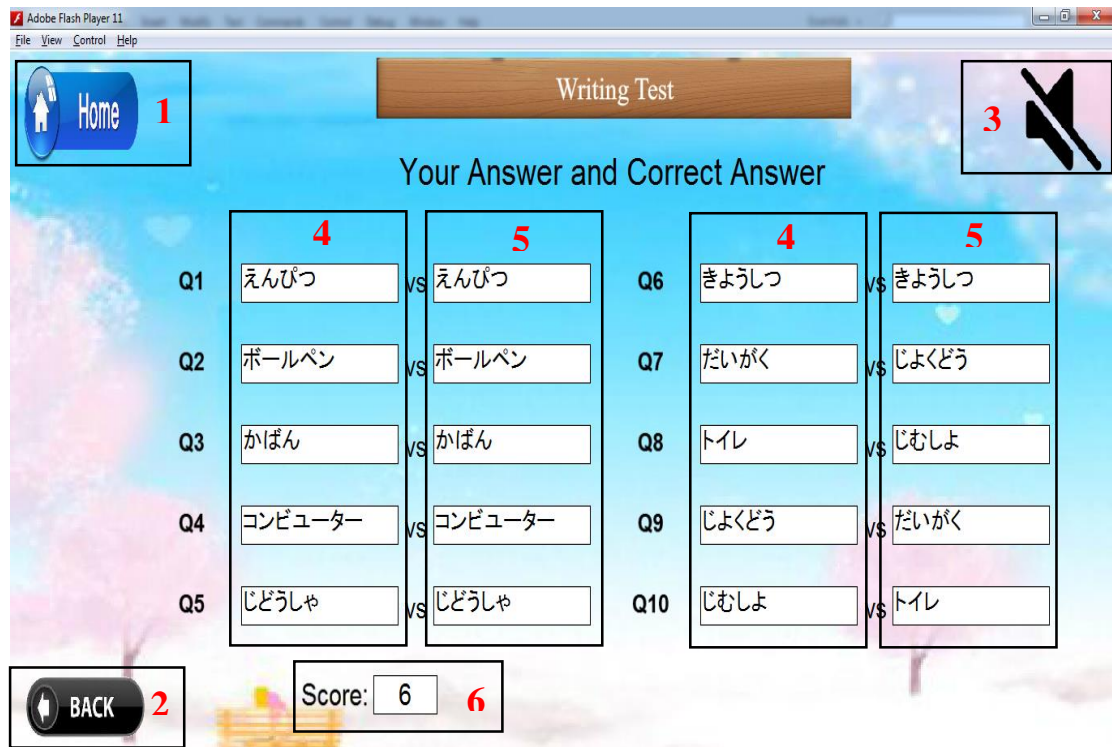


Figure 5-1-F10 Writing Test Result Page

Label	Description
1	When mouseover, the Home button will become larger. When users click on Home button, it will proceed to Main Menu Page.
2	When mouseover, the Back button will become larger. When users click on Back button, it will proceed to Quiz Main Page.
3	When mouseover, the Sound button will become larger. When users click on Sound button, it will mute the background music of current page and will continue to play the background music when users click it again.
4	Display the user's answers.
5	Display the correct answers.
6	Calculate the score that users correct how many question.

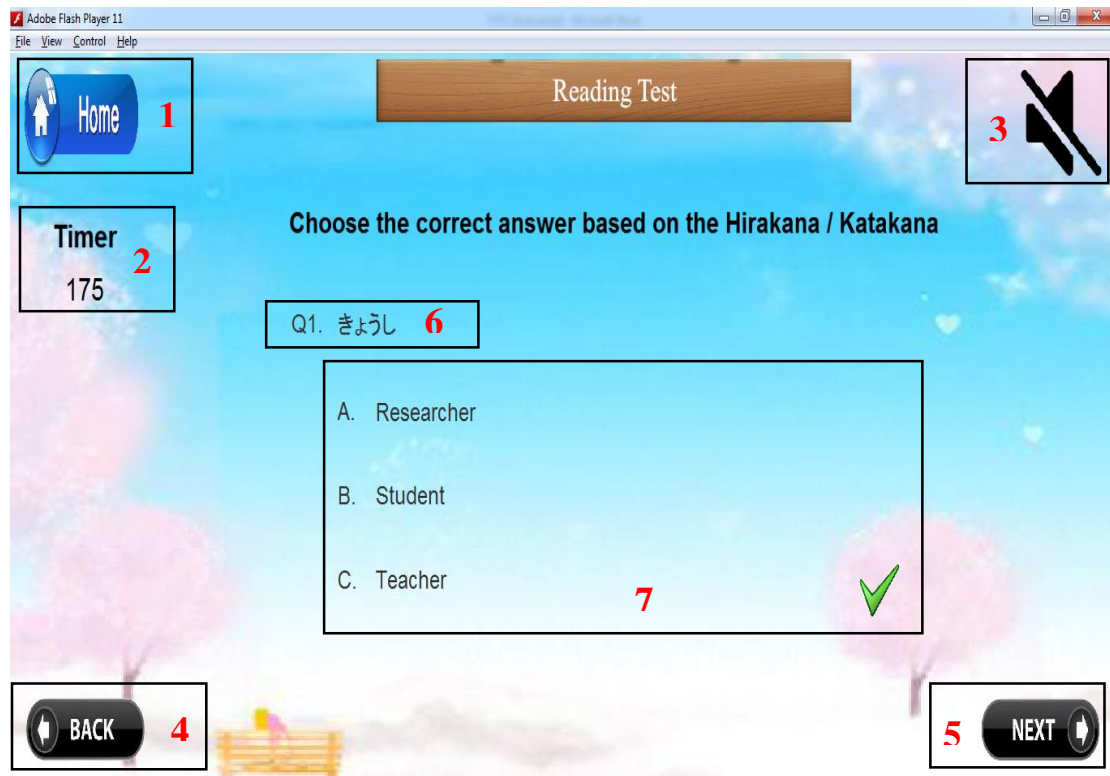


Figure 5-1-F11 Reading Test Page

Label	Description
1	When mouseover, the Home button will become larger. When users click on Home button, it will proceed to Main Menu Page.
2	Used to count down the time. Users have to finish the test before the time end.
3	When mouseover, the Sound button will become larger. When users click on Sound button, it will mute the background music of current page and will continue to play the background music when users click it again.
4	When mouseover, the Back button will become larger. When users click on Back button, it will proceed to Quiz Main Page.
5	When mouseover, the Next button will become larger. When users click on Next button, it will proceed to next question.
6	Display the question.
7	Display the multiple answer to let users choose the correct answer. While the answer is correct, “tick” icon will appear. Otherwise, “cross” icon will appear.

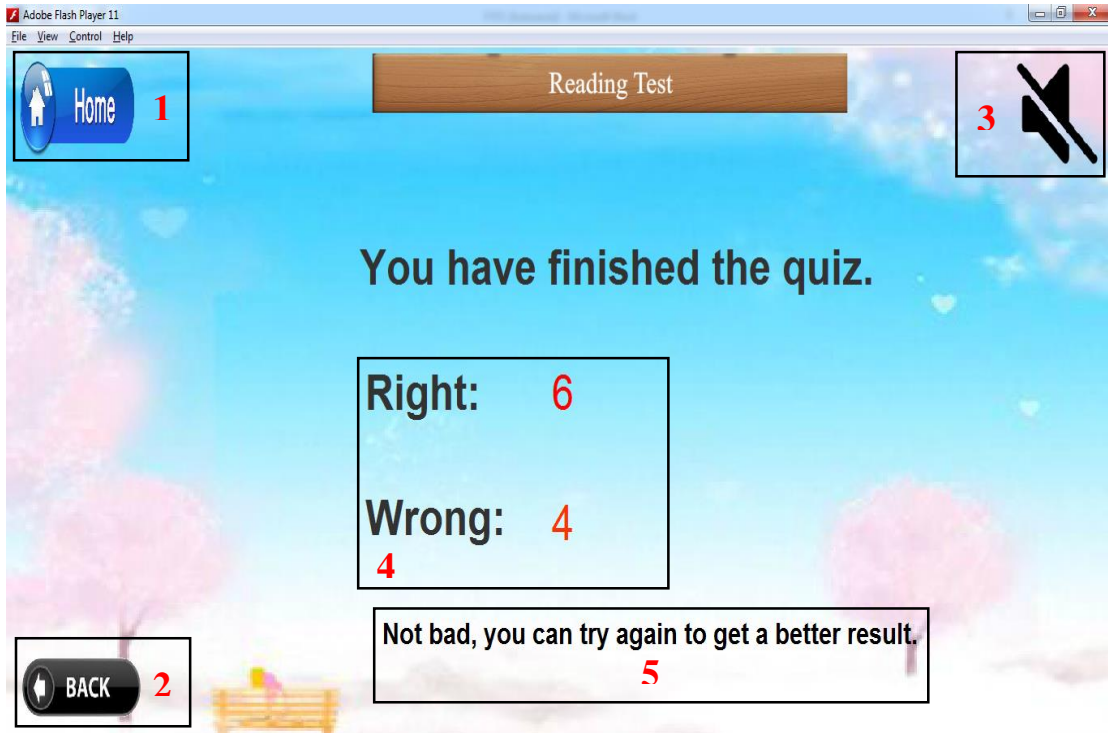


Figure 5-1-F12 Reading Test Result Page

Label	Description
1	When mouseover, the Home button will become larger. When users click on Home button, it will proceed to Main Menu Page.
2	When mouseover, the Back button will become larger. When users click on Back button, it will proceed to Quiz Main Page.
3	When mouseover, the Sound button will become larger. When users click on Sound button, it will mute the background music of current page and will continue to play the background music when users click it again.
4	Display the number of question which is correct and wrong.
5	Based on the result, it will display different sentence to encourage users.

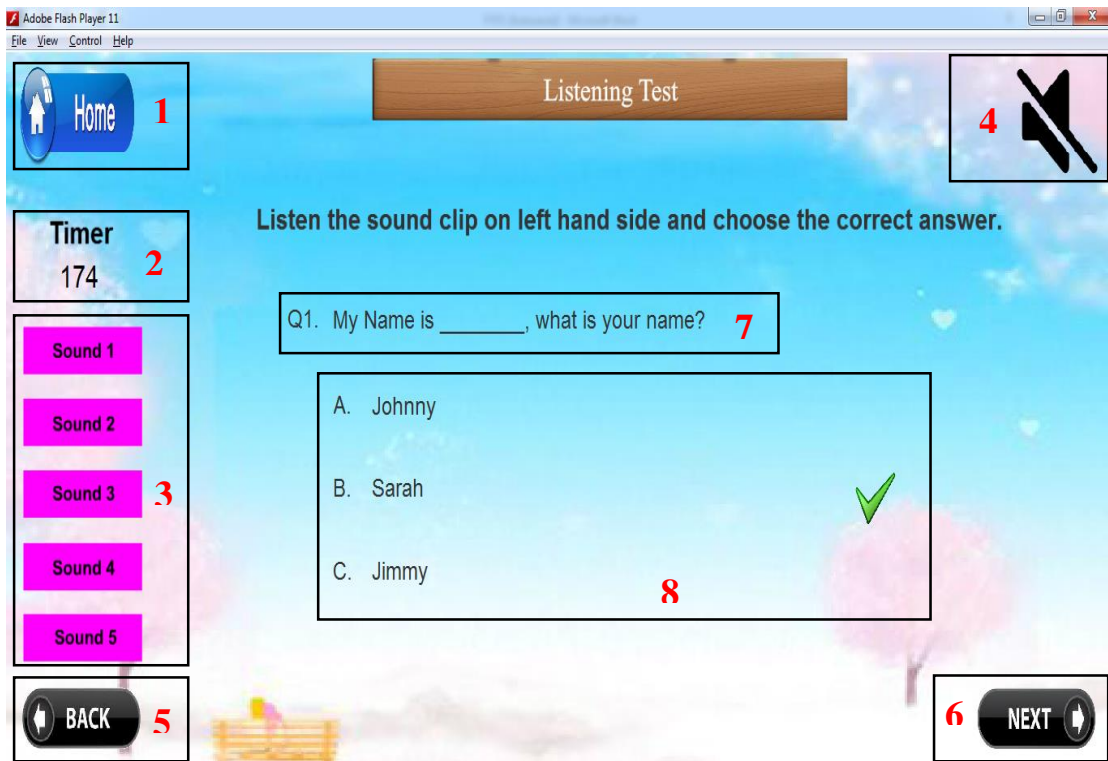


Figure 5-1-F13 Listening Test Page

Label	Description
1	When mouseover, the Home button will become larger. When users click on Home button, it will proceed to Main Menu Page.
2	Used to count down the time. Users have to finish the test before the time end.
3	A list of sound as a hint for users to answer the questions.
4	When mouseover, the Sound button will become larger. When users click on Sound button, it will mute the background music of current page and will continue to play the background music when users click it again.
5	When mouseover, the Back button will become larger. When users click on Back button, it will proceed to Quiz Main Page.
6	When mouseover, the Next button will become larger. When users click on Next button, it will proceed to next question.
7	Display the question.
8	Display the multiple answer to let users choose the correct answer. While the answer is correct, “tick” icon will appear. Otherwise, “cross” icon will appear.

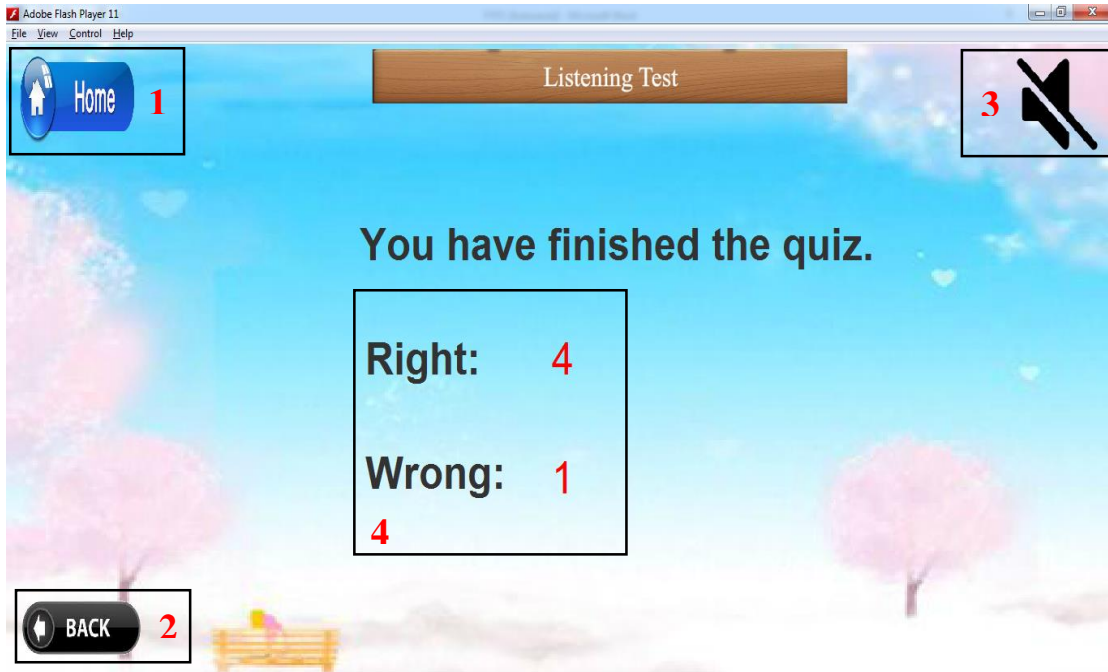


Figure 5-1-F14 Listening Test Result Page

Label	Description
1	When mouseover, the Home button will become larger. When users click on Home button, it will proceed to Main Menu Page.
2	When mouseover, the Back button will become larger. When users click on Back button, it will proceed to Quiz Main Page.
3	When mouseover, the Sound button will become larger. When users click on Sound button, it will mute the background music of current page and will continue to play the background music when users click it again.
4	Display the number of question which is correct and wrong.

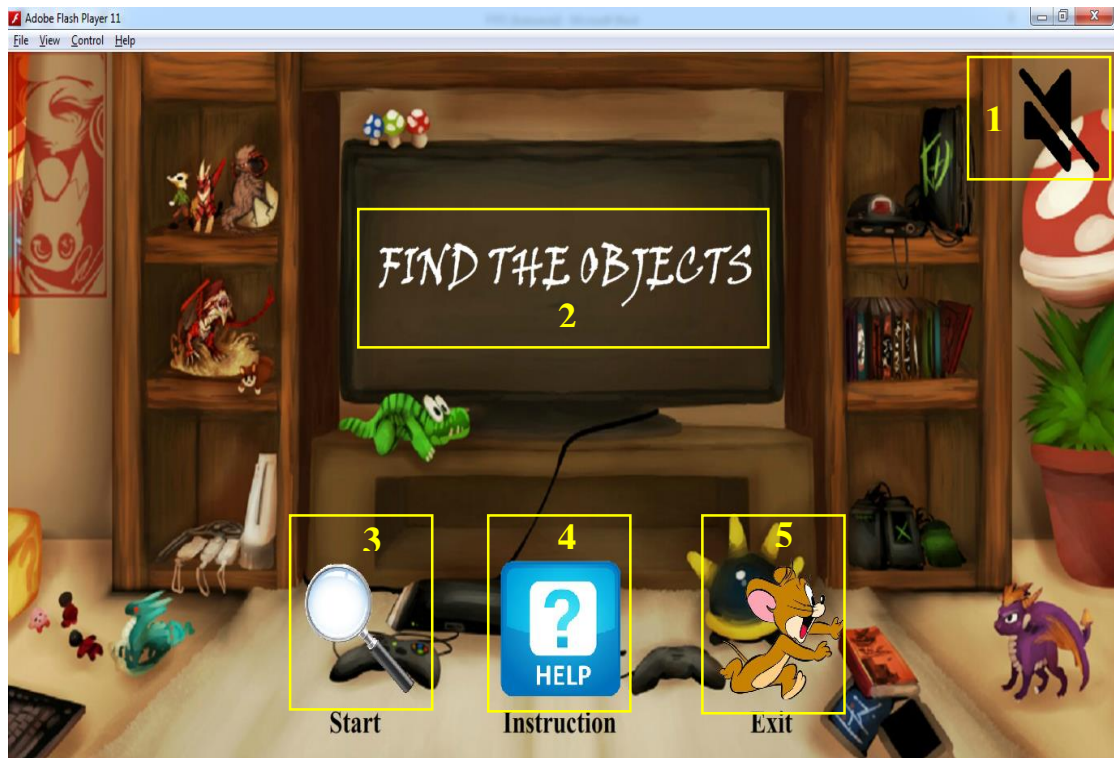


Figure 5-1-F15 Game Main Page

Label	Description
1	When mouseover, the Sound button will become larger. When users click on Sound button, it will mute the background music of current page and will continue to play the background music when users click it again.
2	Title of the game.
3	When mouseover, the Start button will become larger. When users click on Start button, it will start the game.
4	When mouseover, the Instruction button will become larger. When users click on Instruction button, it will proceed to Game Instruction Page.
5	When mouseover, the Exit button will become larger. When users click on Exit button, it will proceed to Main Menu Page.



Figure 5-1-F16 Game Page

Label	Description
1	Used to count down the time. Users have to finish the test before the time end.
2	Calculate the score and display it.
3	A list of box that let users to drop the correct object.
4	When mouseover, the Back button will become larger. When users click on Back button, it will proceed to Game Main Page.
5	A list of object that users can drag the object.

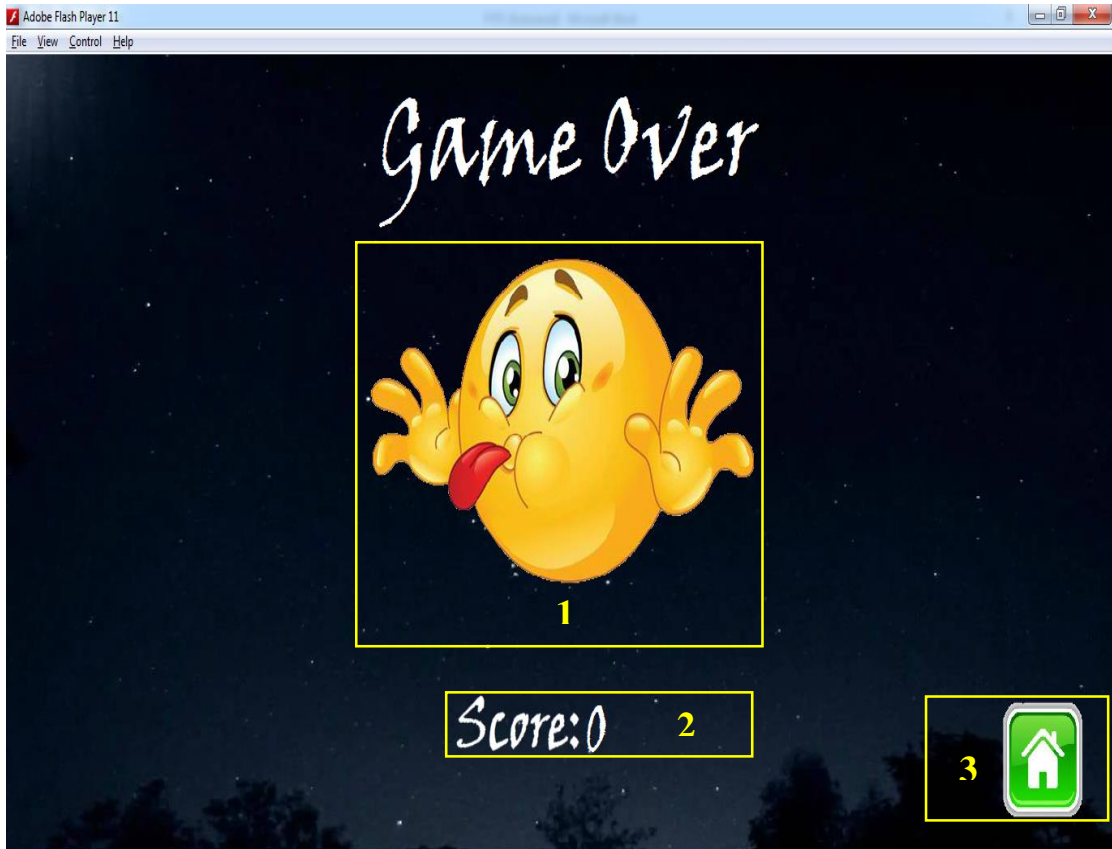


Figure 5-1-F17 Game Over Page

Label	Description
1	An animation that will keep move down and move up.
2	Calculate the final score and display it once users is game over.
3	When mouseover, the Home button will become larger. When users click on Home button, it will proceed to Game Main Page.

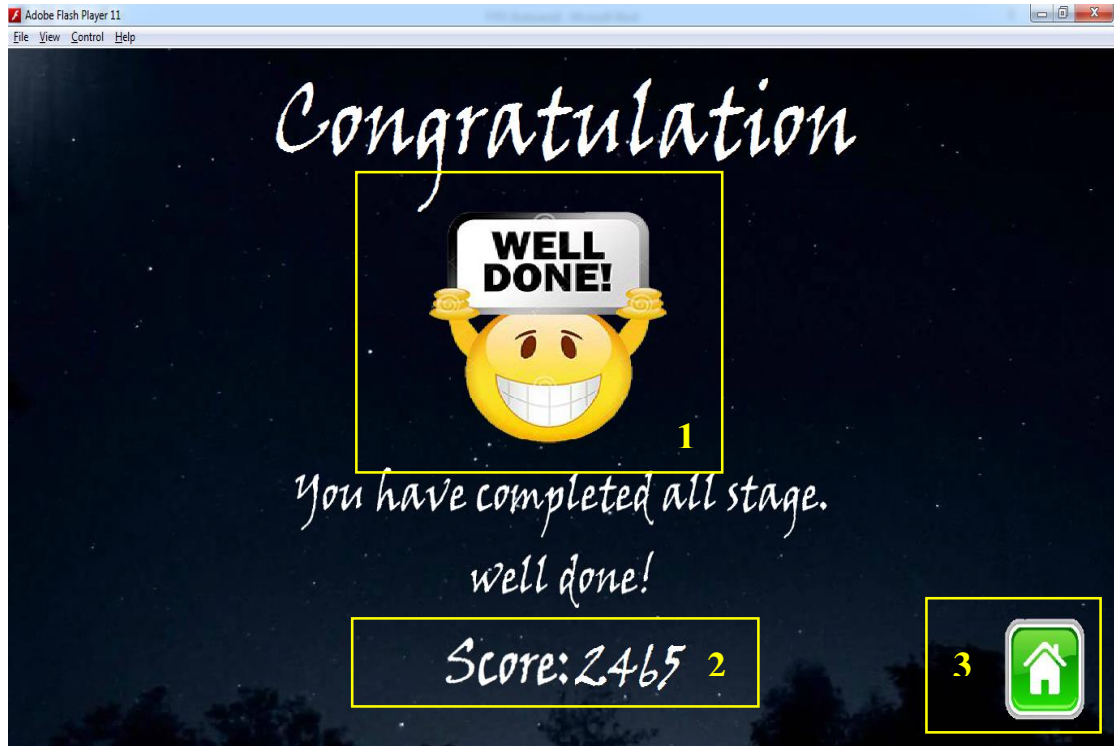


Figure 5-1-F18 Congratulation Page

Label	Description
1	An animation that will keep move left and move right.
2	Calculate the final score and display it once users have completed the game.
3	When mouseover, the Home button will become larger. When users click on Home button, it will proceed to Game Main Page.



Figure 5-1-F19 Game Instruction Page

Label	Description
1	An animation that will keep moving to teach the users how to drag the object and drop at where.
2	When mouseover, the Home button will become larger. When users click on Home button, it will proceed to Game Main Page.

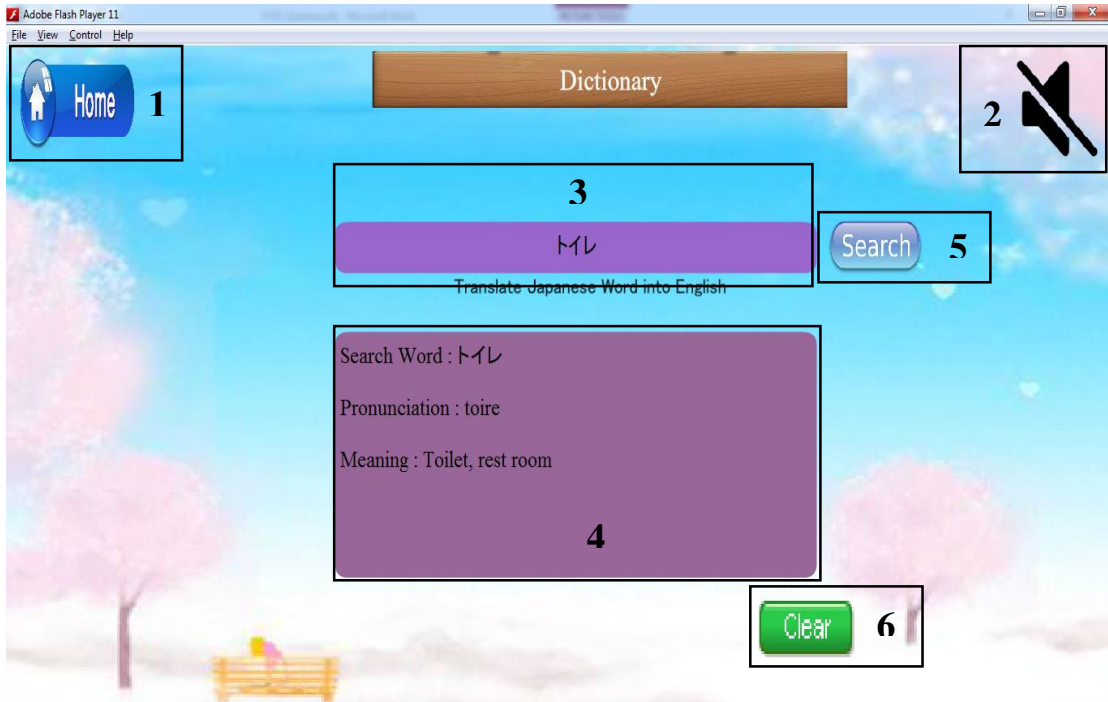


Figure 5-1-F20 Dictionary Page

Label	Description
1	When mouseover, the Home button will become larger. When users click on Home button, it will proceed to Main Menu Page.
2	When mouseover, the Sound button will become larger. When users click on Sound button, it will mute the background music of current page and will continue to play the background music when users click it again.
3	A textbox that let users to type the word they want to search.
4	A box that display the meaning and pronunciation of the word that users searched.
5	When mouseover, the Search button will become larger. When users click on Search button, it will start to search the word that users typed in the box.
6	Clear button will appear once users have searched the word. Otherwise, Clear button is invisible. When mouseover, the Clear button will become larger. When users click on Clear button, it will clear all the record and make it empty.

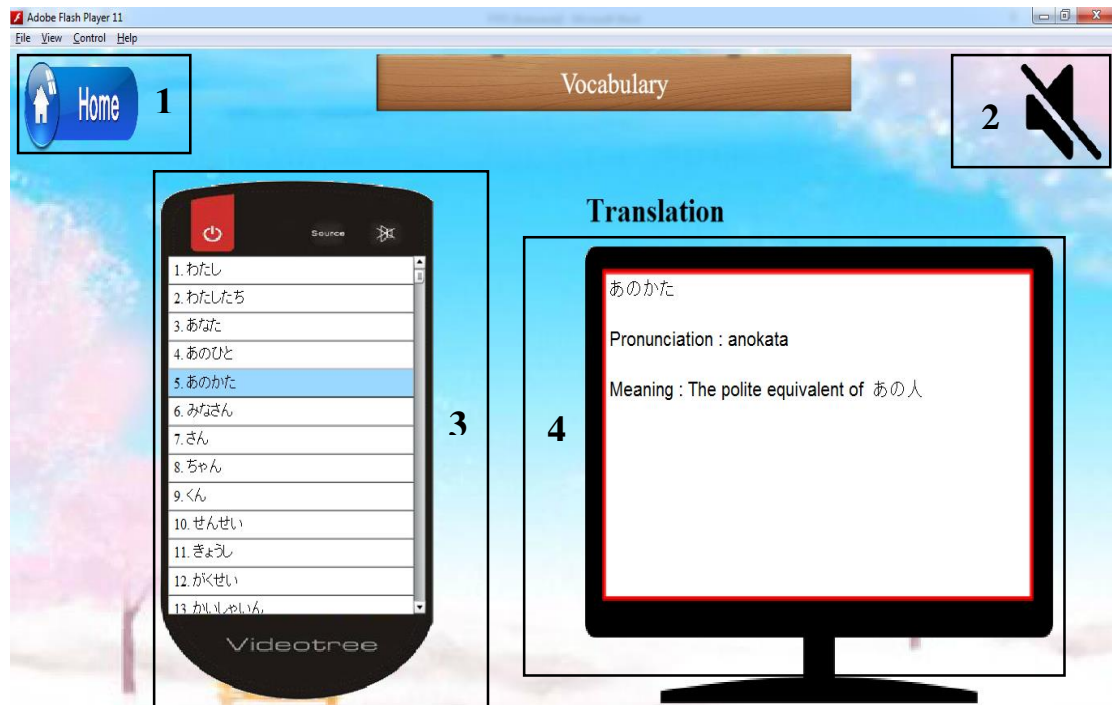


Figure 5-1-F21 Vocabulary Page

Label	Description
1	When mouseover, the Home button will become larger. When users click on Home button, it will proceed to Main Menu Page.
2	When mouseover, the Sound button will become larger. When users click on Sound button, it will mute the background music of current page and will continue to play the background music when users click it again
3	A list component that display a list of Japanese words to let users choose.
4	The textbox will display the meaning and pronunciation of the Japanese word, once users click on the Japanese word that they want to know.

6.0 Testing

6.1 Alpha Testing

Alpha testing is used to test among the author and will not involve the clients or the users. Therefore, the author has conducted the alpha testing as the first phase or process to test the software development for the multimedia courseware for learning Japanese language level 1. Furthermore, alpha testing can help the author to reduce the amount of error occur when implementing the user evaluation of the multimedia courseware for Japanese language level 1 and the purpose of the author conduct the alpha testing is because it can test whether the system is having errors or bugs. The first phase of the alpha testing is included the unit testing, integration testing and system testing.

6.1.1 Unit Testing

Unit testing is one kind of software development process which is used to test each units of source code performed by the author (Tutorialspoint 2014). During this project, unit testing is used to test each module and make sure each modules can be function and run properly and meet the expected result of user. Once some error occur during the unit testing, the author will solve the errors as fast as possible to make sure the system can performing correctly.

6.1.1.1 Main Menu Page

No.	Test Field	Expected Result	Test Result	Remarks
1.	Click on “Learning Module” button	Link to Learning Module Page	Same with expected result	Success
2.	Click on “Tutorial Module” button	Link to Tutorial Module Page	Same with expected result	Success
3.	Click on “Quiz Module” button	Link to Quiz Module Page	Same with expected result	Success

4.	Click on “Game Module” button	Link to Game Module Page	Same with expected result	Success
5.	Click on “Dictionary Module” button	Link to Dictionary Module Page	Same with expected result	Success
6.	Click on “Vocabulary Module” button	Link to Vocabulary Module Page	Same with expected result	Success
7.	Click on “Sound” button	Able to turn on and mute the background music	Same with expected result	Success
8.	Click on “Exit” button	Exit the program	Same with expected result	Success

6.1.1.2 Learning Module Page

No.	Test Field	Expected Result	Test Result	Remarks
1.	Click on “Home” button	Link to Main Menu Page	Same with expected result	Success
2.	Click on material of teaching	The material will able to play sound	Same with expected result	Success
3.	Click on “Lesson 1” button	Link to Lesson 1 Page	Same with expected result	Success
4.	Click on “Lesson 2” button	Link to Lesson 2 Page	Same with expected result	Success
5.	Click on “Lesson 3” button	Link to Lesson 3 Page	Same with expected result	Success
6.	Click on “Lesson 4” button	Link to Lesson 4 Page	Same with expected result	Success
7.	Click on “Lesson 5” button	Link to Lesson 5 Page	Same with expected result	Success
8.	Click on “Previous” button	Link to previous page in same module	Same with expected result	Success
9.	Click on “Next” button	Link to next page in same module	Same with expected result	Success

10.	Click on “Sound” button	Able to turn on and mute the background music	Same with expected result	Success
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6.1.1.3 Tutorial Module Page

No.	Test Field	Expected Result	Test Result	Remarks
1.	Click on “Home” button	Link to Main Menu Page	Same with expected result	Success
2.	Click on material of tutorial	The material will able to drag and drop	Same with expected result	Success
3.	Click on “Tutorial 1” button	Link to Tutorial 1 Page	Same with expected result	Success
4.	Click on “Tutorial 2” button	Link to Tutorial 2 Page	Same with expected result	Success
5.	Click on “Tutorial 3” button	Link to Tutorial 3 Page	Same with expected result	Success
6.	Click on “Tutorial 4” button	Link to Tutorial 4 Page	Same with expected result	Success
7.	Click on “Tutorial 5” button	Link to Tutorial 5 Page	Same with expected result	Success
8.	Click on “Previous” button	Link to previous page in same module	Same with expected result	Success
9.	Click on “Next” button	Link to next page in same module	Same with expected result	Success
10.	Click on “Sound” button	Able to turn on and mute the background music	Same with expected result	Success
11.	Sound effect of correct and wrong answer	Able to play the sound effect to the each answer	Same with expected result	Success
12.	Drag and Drop	Able to drag the object and drop it on the correct place	Same with expected result	Success

6.1.1.4 Quiz Module Page

No.	Test Field	Expected Result	Test Result	Remarks
1.	Click on “Home” button	Link to Main Menu Page	Same with expected result	Success
2.	Click on “Writing Test” button	Link to Writing Test Page	Same with expected result	Success
3.	Click on “Reading Test” button	Link to Reading Test Page	Same with expected result	Success
4.	Click on “Listening Test” button	Link to Listening Test Page	Same with expected result	Success
5.	Display the countdown timer	Timer will start to count down once user start the quiz.	Same with expected result	Success
6.	Sound effect of correct and wrong answer	Able to play the sound effect to the each answer	Same with expected result	Success
7.	Click on “Sound” button	Able to turn on and mute the background music	Same with expected result	Success
8.	Display score	The score will be calculate automatically and displayed at the end of the quiz	Same with expected result	Success
9.	Click on “Back” button	Back to Quiz Module Main Page	Same with expected result	Success

6.1.1.5 Game Module Page

No.	Test Field	Expected Result	Test Result	Remarks
1.	Click on “Exit” button	Link to Main Menu Page	Same with expected result	Success
2.	Click on “Start” button	Start the game	Same with expected result	Success
3.	Click on “Instruction” button	Link to Instruction page	Same with expected result	Success
4.	Display the countdown timer	Timer will start to count down once user start the quiz.	Same with expected result	Success
5.	Sound effect of correct and wrong answer	Able to play the sound effect to the each answer	Same with expected result	Success
6.	Click on “Sound” button	Able to turn on and mute the background music	Same with expected result	Success
7.	Display score	The score will be calculate automatically and displayed at the end of the quiz	Same with expected result	Success
8.	Drag and Drop	Able to drag the object and drop it on the correct place	Same with expected result	Success
9.	Click on “Back” button	Back to Game Module Main Page	Same with expected result	Success

6.1.1.6 Dictionary Module Page

No.	Test Field	Expected Result	Test Result	Remarks
1.	Click on “Home” button	Link to Main Menu Page	Same with expected result	Success
2.	Click on “Search” button	Able to search and display the result	Same with expected result	Success
3.	Click on “Clear” button	Able to clear all the result	Same with expected result	Success
4.	Click on “Sound” button	Able to turn on and mute the background music	Same with expected result	Success

6.1.1.7 Vocabulary Module Page

No.	Test Field	Expected Result	Test Result	Remarks
1.	Click on “Home” button	Link to Main Menu Page	Same with expected result	Success
2.	Click on the item in the list component	Display the meaning, pronunciation and explanation	Same with expected result	Success
3.	Click on “Sound” button	Able to turn on and mute the background music	Same with expected result	Success

6.1.2 Integration Testing

Integration testing is used to test integration or interfaces between different parts of the system. The different between unit testing and integration testing is the testing is no longer tested independently but is tested as a groups. It is important to the author because it can discover problems with the interfaces among the system component before any problem or trouble occurs. (Rouse 2008; ISTQB Exam Certification 2015)

6.1.2.1 Images and Sound

No.	Test Field	Expected Result	Test Result	Remarks
1.	Import image	Import images that edited by Adobe Photoshop.	Same with expected result	Success
2.	Import sound	Import sound to Flash.	Same with expected result	Success
3.	Integrate sound into frame	Integrate the background music into the keyframe.	Same with expected result	Success
4.	Integrate sound into button	Integrate the sound effect into the button so that sound will play when mouse click.	Same with expected result	Success

6.1.2.2 SWF of Each Module

No.	Test Field	Expected Result	Test Result	Remarks
1.	Integrate different module with Main Menu Module	Integrate each module together, therefore can go to each module.	Same with expected result	Success

6.1.3 System Testing

Once the integration testing is finish by the author, the system testing will be the next testing. System testing is most often the final test to verify that the system to be delivered meets the specification and its purpose. In system testing, the behavior of whole system is tested as defined by the scope of the development project and it is carried out by independent testers (ISTQB Exam Certification 2015). If the output is not match with the expected result, the author will do the modified and come out with the more satisfy output.

No.	Test Field	Expected Result	Test Result	Remarks
1.	Run the system in: - Acer Aspire 4752Z - Windows 7 - Intel B960 processor - Intel HD Graphics - 2GB RAM	Run the system without any error.	Same with expected result	Success
2.	Run the system in: - HP 1000-1409TX Notebook - Windows 7 - 2.3 GHz Intel Core i3 2348M - AMD Radeon HD 7450 - 4GB RAM	Run the system without any error.	Same with expected result	Success
3.	Run the system in: - Asus A43S - Windows 7 - Intel Core i5 Processor - NVIDIA Geforce 610M - 6GB RAM	Run the system without any error.	Same with expected result	Success

6.2 Beta Testing

Beta testing can be considered as pre-release testing. Beta testing is to place the system in the hands of real users outside of own engineering team to discover any flaws or issues from the user's perspective. There are two type of beta testing, which are open beta and closed beta. Open beta are from a larger group to the general public, while closed beta are released to a select group of individuals for a user test and are invitation only (ISTQB Exam Certification 2015). During beta testing, the testers can report any bugs that they find and sometimes suggest additional features they think should be available in the system. Therefore, the author can solve the bugs of the system and improve it.

Besides that, beta testing is the second phase of the proposed system testing which involving the target audience who are universities' student to try out the proposed multimedia courseware.

6.2.1 Questionnaire for User Evaluation

The purpose of user evaluation is to collect the feedback from the participants. Therefore, participants will test the system and give some feedback for the author to improve the system in the future.

6.2.1.1 Result of Questionnaire

The questionnaire have 11 questions and the questionnaire are distributed to 50 universities' students to answer the questions since 50 universities' students will give the trustworthy data (Optimalworkshop, 2016). Through the questionnaire, the author can collect and analyze the data. Below is the data collected from the questionnaire.

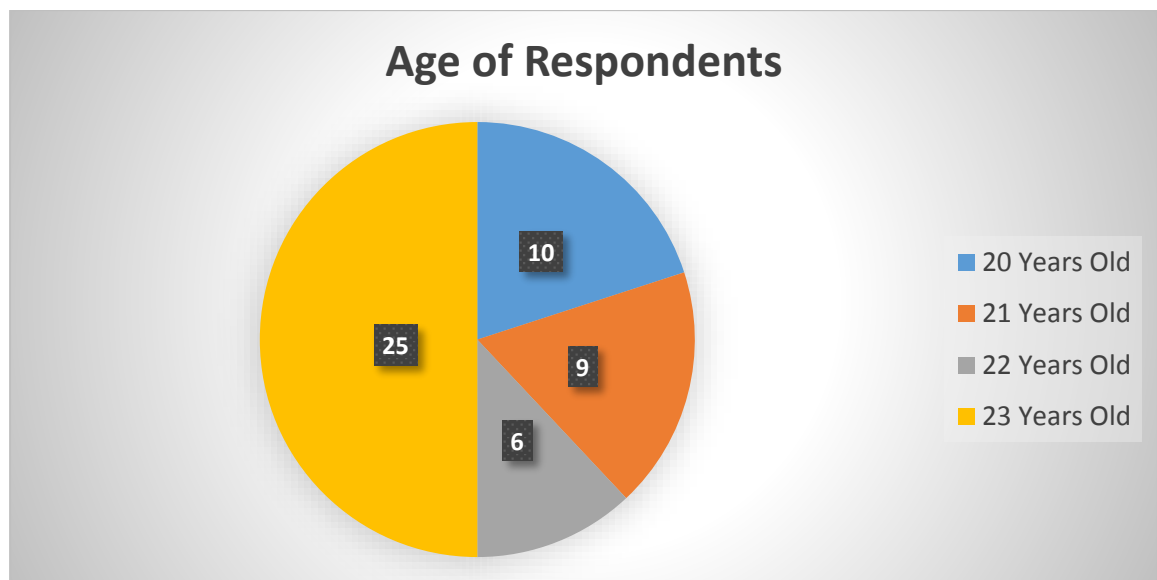


Figure 6-2-1-1-F1 Age of Respondents

From the Figure 6-2-1-1-F1, among 50 respondents, 10 of respondents were 20 years old, 9 of respondents were 21 years old, 6 of respondents were 22 years old and 25 of respondents were 23 years old.

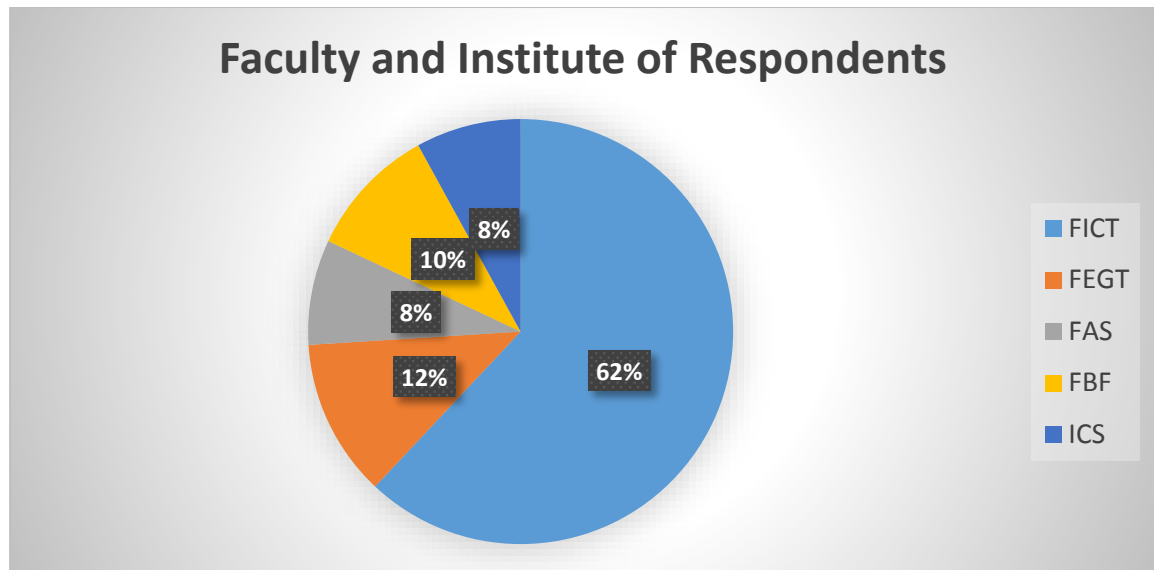


Figure 6-2-1-1-F2 Faculty and Institute of Respondents

Next, 62% of respondents were came from FICT (Faculty of Information and Communication Technology), 12% of respondents were came from FEGT (Faculty of Engineering and Green Technology), 8% of respondents were came from FAS (Faculty of Art and Social Science), 10% of respondents were came from FBF (Faculty of Business and Finance and 8% of respondents were came from ICS (Institute of Chinese Studies). Figure 6-2-1-1-F2 has shown the faculty and institute of the respondents.

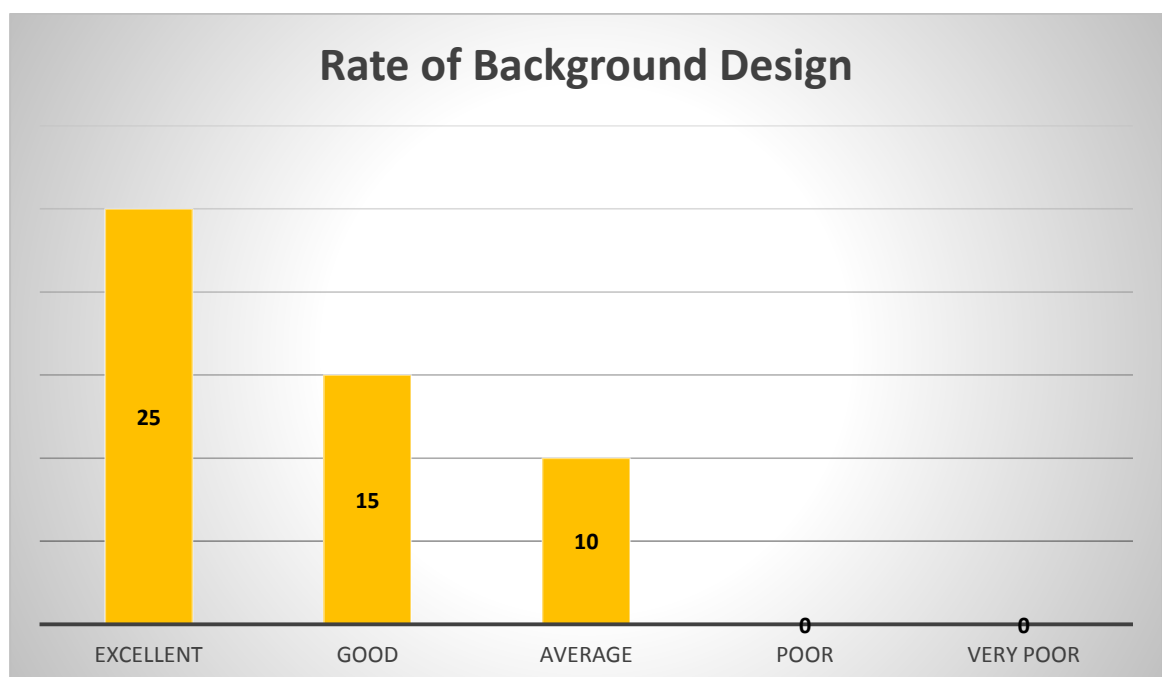


Figure 6-2-1-1-F3 Rate of Background Design

According to Figure 6-2-1-1-F3, out of 50 respondents, there were 25 respondents rate the background design were excellent, 15 respondents rate the background design were good and 10 respondents rate the background design were average. There were no respondents were rates poor and very poor of background design of the multimedia courseware. Therefore, the background design of the multimedia courseware has successfully attracting user to use this multimedia courseware.

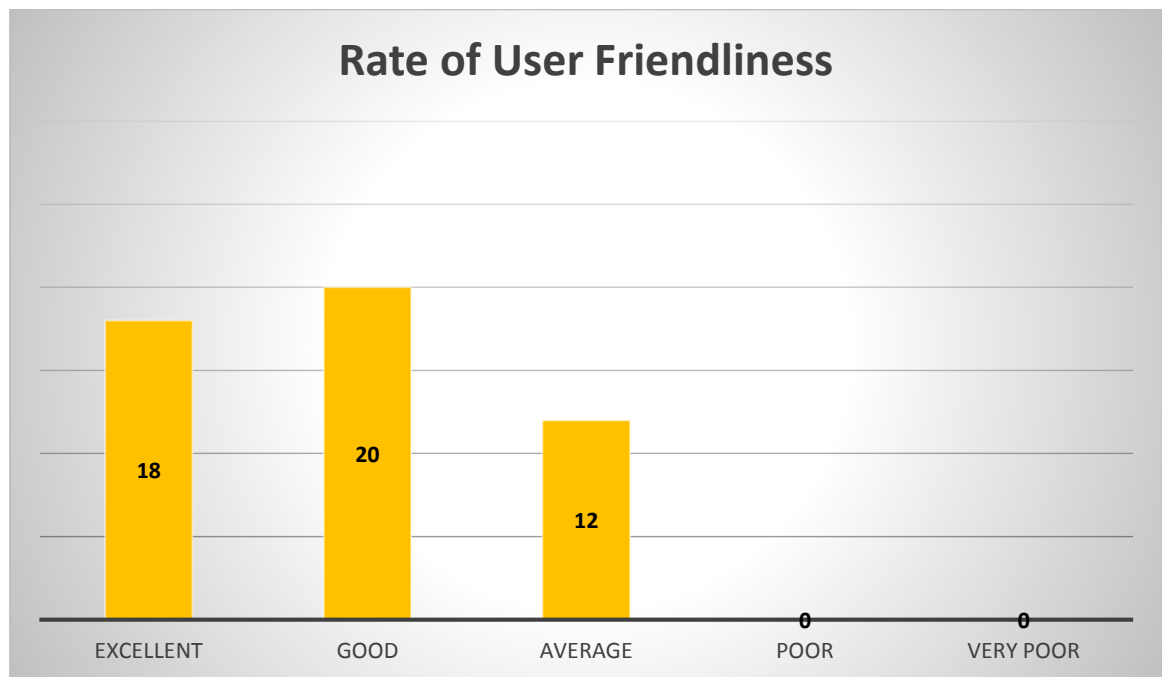


Figure 6-2-1-1-F4 Rate of User Friendliness

Based on the Figure 6-2-1-1-F4, there were 18 respondents rate the user friendliness of the multimedia courseware were excellent, 20 respondents rate user friendliness of the multimedia courseware were good and 12 respondents rate user friendliness of the multimedia courseware were average. There were no respondents were rates poor and very poor of user friendliness of the multimedia courseware. Therefore, this multimedia courseware has a good user friendliness interface.

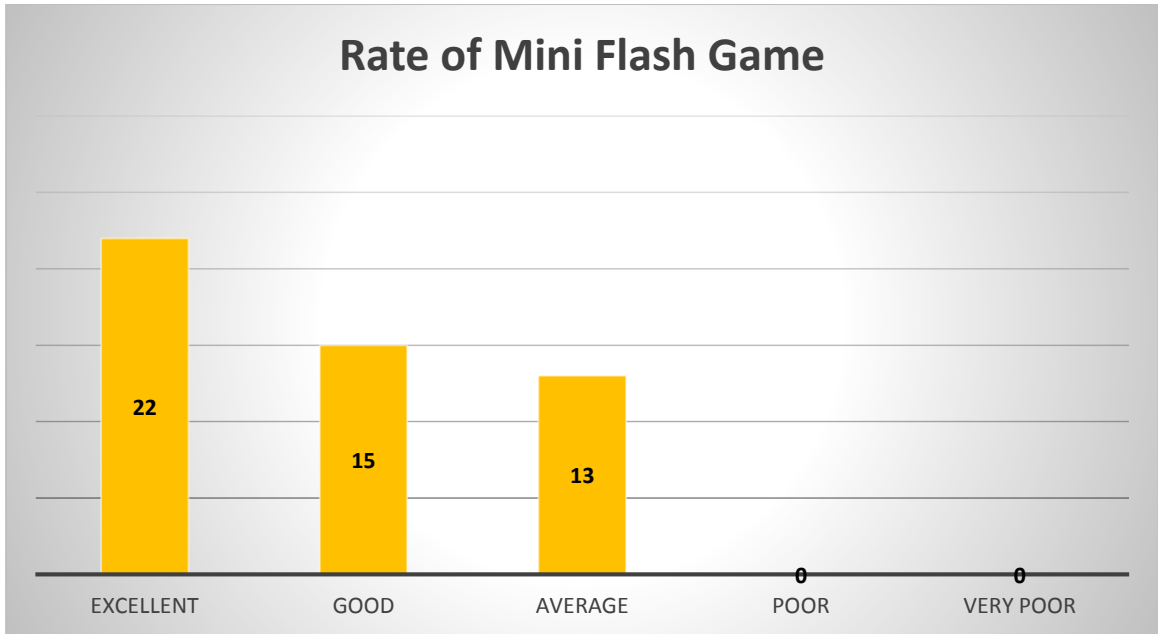


Figure 6-2-1-1-F5 Rate of Mini Flash Game

Figure 6-2-1-1-F5 has shown that 22 respondents rate the mini flash game were excellent, 15 respondents rate the mini flash game were good and 13 respondents rate the mini flash game were average. There were no respondents were rates poor and very poor of mini flash game of the multimedia courseware. Therefore, this multimedia courseware has an excellent mini flash game.

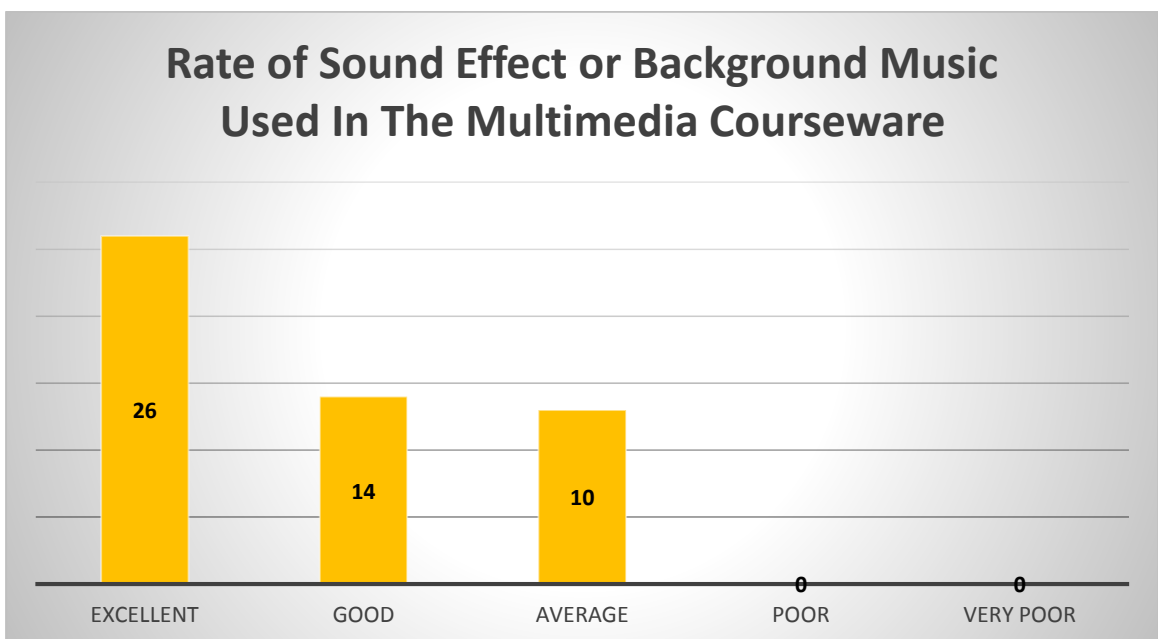


Figure 6-2-1-1-F6 Rate of sound effect or background music used in the multimedia courseware

Based on the Figure 6-2-1-1-F6, it shows that there were 26 respondents rate the sound effect of background music used were excellent, 14 respondents rate the sound effect of background music used were good and 10 respondents rate the sound effect of background music used were average. There were no respondents were rates poor and very poor of sound effect or background music used in the multimedia courseware. Therefore, this multimedia courseware has successfully attracting user.

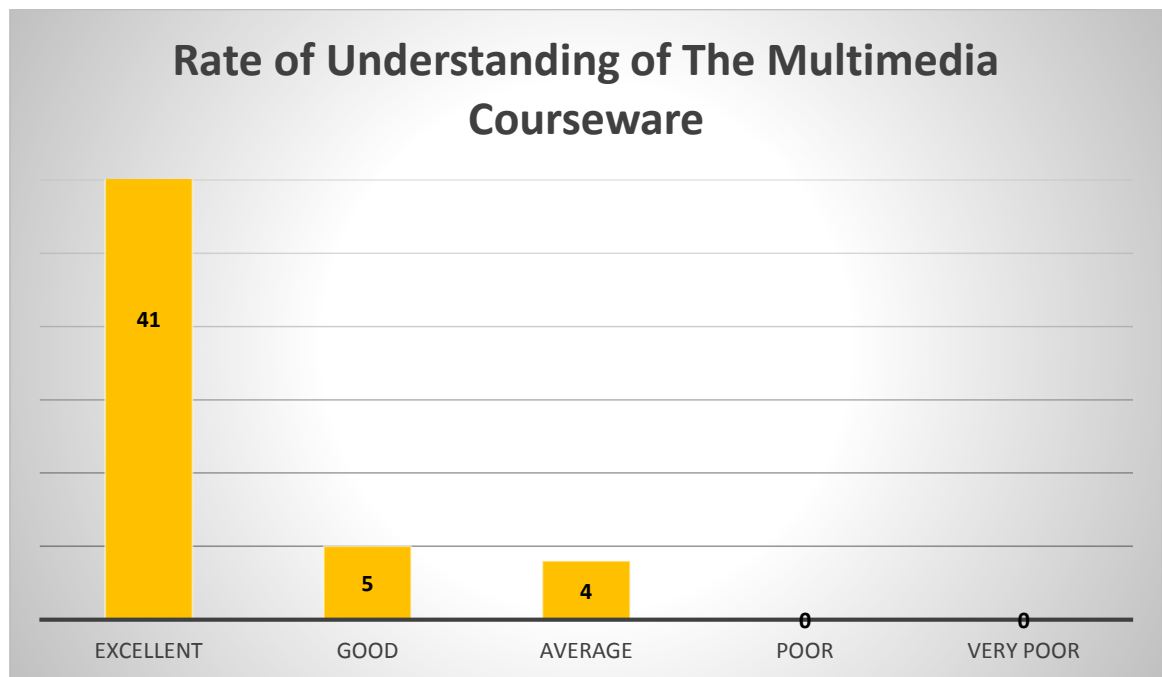


Figure 6-2-1-1-F7 Rate of understanding of the multimedia courseware

According to Figure 6-2-1-1-F7, there were 41 respondents rate the understanding of the multimedia courseware were excellent, 5 respondents rate the understanding of the multimedia courseware were good and 4 respondents rate the understanding of the multimedia courseware were average. It shows that more than half respondents answer that they could understand what the multimedia courseware try to teach them.

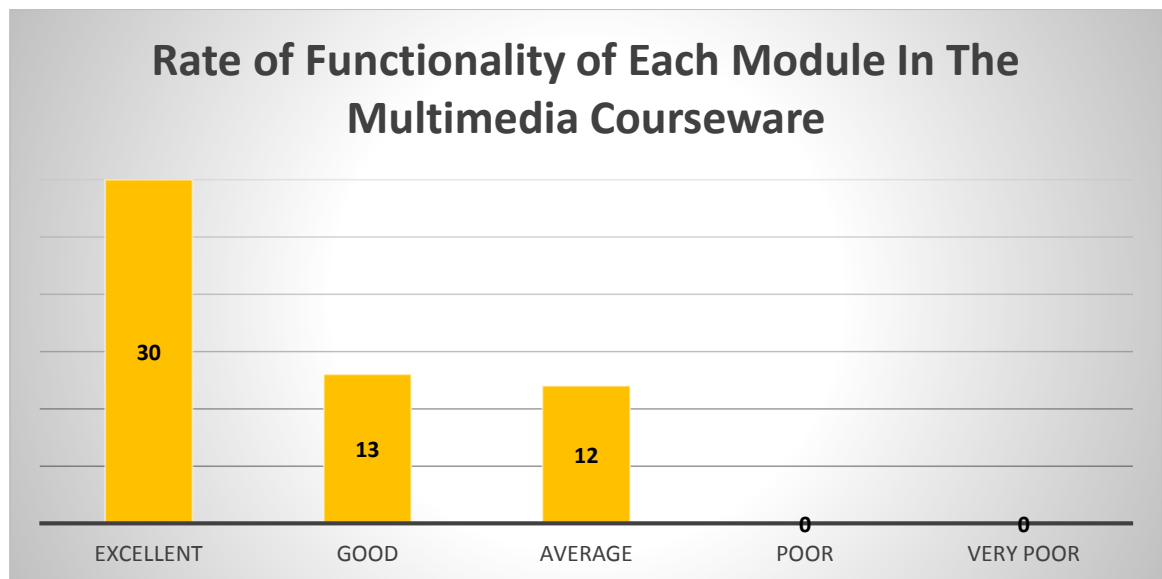


Figure 6-2-1-1-F8 Rate of functionality of each module in the multimedia courseware

From the Figure 6-2-1-1-F8, there were 30 respondents rate the functionality of each module in the multimedia courseware were excellent, 14 respondents rate the functionality of each module in the multimedia courseware were good, and 12 respondents rate the functionality of each module in the multimedia courseware were average. Most of the respondents answer that the functionality of each module in the multimedia courseware were excellent. Therefore, all the functionality of each module in this multimedia courseware such as learning module, tutorial module, quiz module, game module and dictionary module has meet the user requirement.

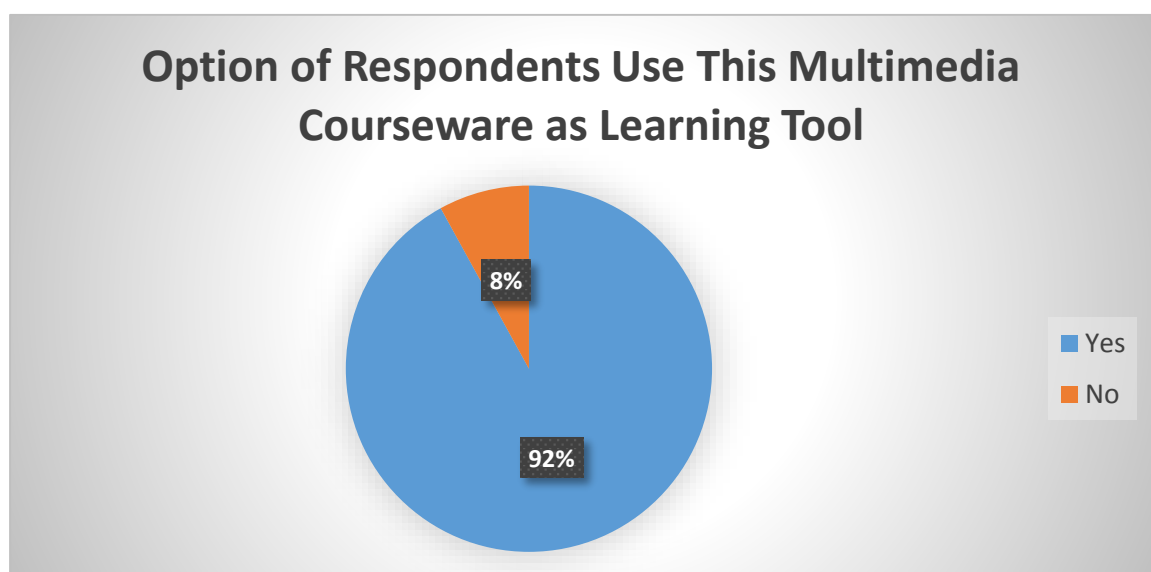


Figure 6-2-1-1-F9 Option of Respondents use this multimedia courseware as learning tool

Based on the Figure 6-2-1-1-F9, it shows that there were 46 respondents will use the multimedia courseware as their learning tool whereas 4 respondents were reject to use the multimedia courseware as their learning tool.

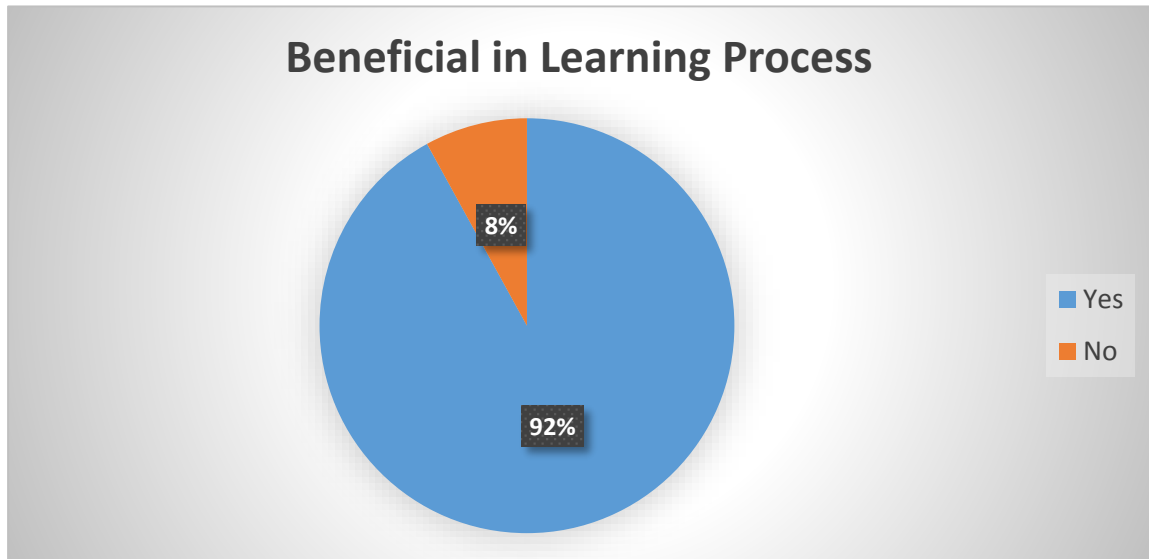


Figure 6-2-1-1-F10 Beneficial in learning process

Figure 6-2-1-1-F10 shows that there were 46 respondents answered yes which mean the multimedia courseware is benefit to the users' learning process whereas only 4 respondents answered no which mean the multimedia courseware would not give benefit to the users' learning process.

Besides that, this questionnaire also allow respondents to give some opinion for the future improvement on this multimedia courseware. As a result, few respondents suggest that game module and learning module should be improved. However the rest of respondents were no provided their opinion.

7.0 Conclusion

7.1 Future Improvement

Since the multimedia courseware for learning Japanese language is a multimedia courseware that teach the students to learn level 1 standard of Japanese language. Therefore, future lesson such as poem of phases and kanji of the Japanese language will not provide in the current multimedia courseware. For the future project, some lesson such as poem and kanji will be added.

Furthermore, the graphic design of the multimedia courseware will be improved by add in some more interesting image to attract the students to use the multimedia courseware to learn Japanese language.

Besides that, pronunciation testing can also add in future project since the current multimedia courseware for learning Japanese language is only can test for the reading, listening and writing abilities of the students. Therefore, the pronunciation testing such as allow students to speak some Japanese word through the microphone and the system will check whether the pronunciation of the students is correct or not. By adding this testing, students can easier to learn the pronunciation of the Japanese words.

7.2 Lesson Learnt

By developed this multimedia courseware, the author had learnt some new knowledge in the following:

7.2.1 Adobe Flash Action Script 3.0

To develop the proposed multimedia courseware, the author have to go online search and learn how Action Script since the author never learn the Action Script before. With the help of friends and online research, the author was knew how to use the Action Script to develop function and apply in the mini flash game. The author also learnt how to create animation by using Flash.

7.2.2 Adobe Flash Professional CS6

To develop the proposed multimedia courseware, the author have to go online search and learn how to manipulate the Adobe Flash Professional CS6 and how to use the function which prepared inside the application.

7.2.3 Japanese language

To develop the proposed multimedia courseware, the author have to go online search and learn the Japanese language since the author never learn the Japanese language before.

7.2.4 Project Management

The author had learnt how to planning and manage a project from beginning stage which is planning until implementation stage. Hence, the author was gain the project management skills and knowledge.

7.3 Challenge Faced

By developing this multimedia courseware for learning Japanese language level 1, author will faced some problem as the following:

7.3.1 Lack of Time Learning

The author have to learn all the related things from the beginning and do research on the related topics such as Japanese language. Author have to spend a lot of time to learn about Japanese language since the author never learn before. The author need to learn the Japanese language through the Internet and textbook. Besides, the author also have to spend some time to learn the developing tools such as Adobe Flash. The author need to learn the tutorial about Adobe Flash with Action Script 3.0. Therefore, author was spent a lot of time to learn a new knowledge.

7.3.2 Integrate Module

Author need to integrate all the module become a complete multimedia courseware after the author develop all module successfully. However, author have face some problem when trying to combine the module together. Therefore, author do the research through the Internet and reference book to solve this problem.

7.4 Conclusion

In conclusion, author believe that the proposed multimedia courseware will provide a good teaching and guideline for the universities' students to learn Japanese language since the content of the multimedia courseware is easy to understand. In addition, the market is lack of high quality multimedia courseware. Therefore, the author believe that the proposed multimedia courseware is a high quality multimedia courseware since the proposed multimedia courseware is consists of some appropriate text, graphics, animation, video and audio to make the courseware look nicely and present different information for students easy to understand.

Furthermore, existing multimedia courseware is lack of interesting about the unattractive design, content and animation. Therefore, the author believe that the proposed multimedia courseware do not have this kind of problem since the proposed multimedia courseware is consists of attractive graphics, animation, audio, video and some text to explain the content, make the content more easier to understand by students compared to textbook. An attractive graphics, animation, audio and video also can make students have interesting and motivation to keep learn about Japanese language.

Besides that, the traditional teaching method is difficult and take some times to understand the content for the students and no voice teaching. Therefore, the proposed multimedia courseware will solve this kind of problems since the contents is present by graphics, animation and others to let students can easy to understand and absorb the contents. Students also can learn the pronunciation about the Japanese words since the voice teaching is provided by the proposed multimedia courseware.

In a nutshell, this proposed multimedia courseware will help more universities' students who wish to learn Japanese language.

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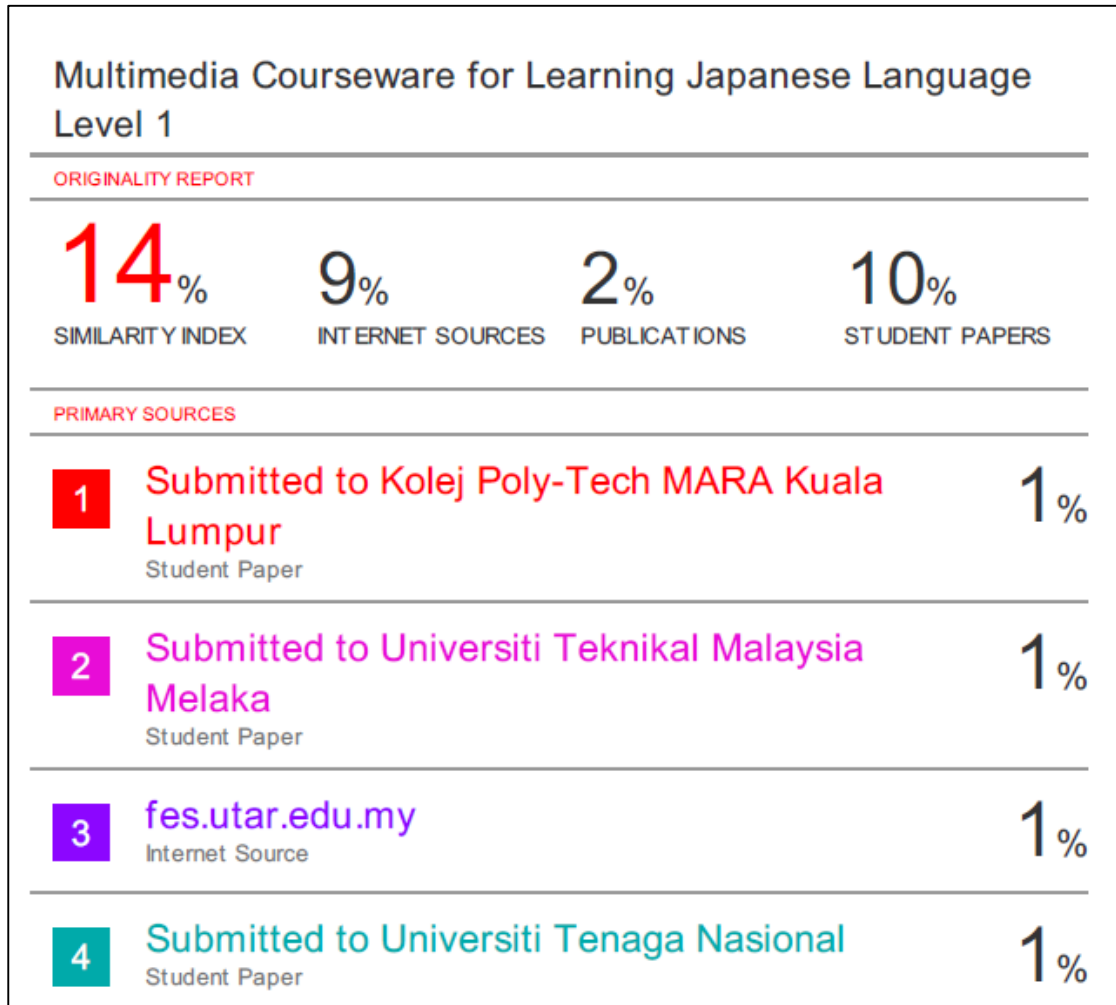
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Appendix A

Print Screen of Turnitin Originality Report



Appendix B

Universiti Tunku Abdul Rahman			
Form Title : Supervisor's Comments on Originality Report Generated by Turnitin for Submission of Final Year Project Report (for Undergraduate Programmes)			
Form Number: FM-IAD-005	Rev No.: 0	Effective Date: 01/10/2013	Page No.: 1 of 1



**FACULTY OF INFORMATION AND COMMUNICATION
TECHNOLOGY**

Full Name(s) of Candidate(s)	Chan Mun Choong
ID Number(s)	14ACB05531
Programme / Course	Information Systems Engineering
Title of Final Year Project	Multimedia Courseware For Learning Japanese Language Level 1

Similarity	Supervisor's Comments (Compulsory if parameters of originality exceeds the limits approved by UTAR)
Overall similarity index: _____ % Similarity by source Internet Sources: _____ % Publications: _____ % Student Papers: _____ %	
Number of individual sources listed of more than 3% similarity: _____	
Parameters of originality required and limits approved by UTAR are as follows: (i) Overall similarity index is 20% and below, and (ii) Matching of individual sources listed must be less than 3% each, and (iii) Matching texts in continuous block must not exceed 8 words <i>Note: Parameters (i) – (ii) shall exclude quotes, bibliography and text matches which are less than 8 words.</i>	

Note Supervisor/Candidate(s) is/are required to provide softcopy of full set of the originality report to Faculty/Institute

Based on the above results, I hereby declare that I am satisfied with the originality of the Final Year Project Report submitted by my student(s) as named above.

Signature of Supervisor

Name: _____

Date: _____

Signature of Co-Supervisor

Name: _____

Date: _____

Appendix C**FINAL YEAR PROJECT WEEKLY REPORT***(Project I / Project II)*

Trimester, Year: Y3S1	Study week no.: 2
Student Name & ID: CHAN MUN CHOONG 14ACB05531	
Supervisor: DR. DORIS WONG HOOI TEN	
Project Title: MULTIMEDIA COURSEWARE FOR LEARNING JAPANESE LANGUAGE LEVEL 1	
1. WORK DONE	
<ul style="list-style-type: none"> - Define the final version of storyboard - Define the version of action script needed to use 	
2. WORK TO BE DONE	
<ul style="list-style-type: none"> - Develop the final version of storyboard 	
3. PROBLEMS ENCOUNTERED	
<ul style="list-style-type: none"> - No 	
4. SELF EVALUATION OF THE PROGRESS	
<ul style="list-style-type: none"> - Can be improved 	

Supervisor's signature

Student's signature

Trimester, Year: Y3S1	Study week no.: 4
Student Name & ID: CHAN MUN CHOONG 14ACB05531	
Supervisor: DR. DORIS WONG HOOI TEN	
Project Title: MULTIMEDIA COURSEWARE FOR LEARNING JAPANESE LANGUAGE LEVEL 1	
1. WORK DONE	
<ul style="list-style-type: none"> - Develop Learning Module - Develop Tutorial Module 	
2. WORK TO BE DONE	
<ul style="list-style-type: none"> - Develop Learning Module successful - Develop Tutorial Module successful 	
3. PROBLEMS ENCOUNTERED	
<ul style="list-style-type: none"> - No 	
4. SELF EVALUATION OF THE PROGRESS	
<ul style="list-style-type: none"> - Can be improved 	

Supervisor's signature

Student's signature

Trimester, Year: Y3S1	Study week no.: 6
Student Name & ID: CHAN MUN CHOONG 14ACB05531	
Supervisor: DR. DORIS WONG HOOI TEN	
Project Title: MULTIMEDIA COURSEWARE FOR LEARNING JAPANESE LANGUAGE LEVEL 1	
1. WORK DONE	
- Develop Quiz Module	
2. WORK TO BE DONE	
- Develop Quiz Module successful	
3. PROBLEMS ENCOUNTERED	
- No	
4. SELF EVALUATION OF THE PROGRESS	
- Can be improved	

Supervisor's signature

Student's signature

Trimester, Year: Y3S1	Study week no.: 8
Student Name & ID: CHAN MUN CHOONG 14ACB05531	
Supervisor: DR. DORIS WONG HOOI TEN	
Project Title: MULTIMEDIA COURSEWARE FOR LEARNING JAPANESE LANGUAGE LEVEL 1	
1. WORK DONE	
- Develop Game Module	
2. WORK TO BE DONE	
- Develop Game Module successful	
3. PROBLEMS ENCOUNTERED	
- No	
4. SELF EVALUATION OF THE PROGRESS	
- Can be improved	

Supervisor's signature

Student's signature

Trimester, Year: Y3S1	Study week no.: 10
Student Name & ID: CHAN MUN CHOONG 14ACB05531	
Supervisor: DR. DORIS WONG HOOI TEN	
Project Title: MULTIMEDIA COURSEWARE FOR LEARNING JAPANESE LANGUAGE LEVEL 1	
1. WORK DONE	
<ul style="list-style-type: none"> - Develop Dictionary Module - Develop Vocabulary Module 	
2. WORK TO BE DONE	
<ul style="list-style-type: none"> - Develop Dictionary Module successful - Develop Vocabulary Module successful 	
3. PROBLEMS ENCOUNTERED	
<ul style="list-style-type: none"> - No 	
4. SELF EVALUATION OF THE PROGRESS	
<ul style="list-style-type: none"> - Can be improved 	

Supervisor's signature

Student's signature

Trimester, Year: Y3S1	Study week no.: 12
Student Name & ID: CHAN MUN CHOONG 14ACB05531	
Supervisor: DR. DORIS WONG HOOI TEN	
Project Title: MULTIMEDIA COURSEWARE FOR LEARNING JAPANESE LANGUAGE LEVEL 1	
1. WORK DONE	
<ul style="list-style-type: none"> - Print screen the system - Complete the documentation 	
2. WORK TO BE DONE	
<ul style="list-style-type: none"> - Prepare for presentation 	
3. PROBLEMS ENCOUNTERED	
<ul style="list-style-type: none"> - No 	
4. SELF EVALUATION OF THE PROGRESS	
<ul style="list-style-type: none"> - Can be improved 	

Supervisor's signature

Student's signature

Appendix D

Questionnaire – Multimedia Courseware for Learning Japanese Language Level 1
(Before Development)

[Please place a “√” on the blank space]

1. What is your gender?

- Yes
- No

2. What is your region?

- Malay
- Indian
- Chinese
- Others: _____

3. What is your Faculty/Institute?

- Faculty of Information and Communication Technology
- Faculty of Arts and Social Science
- Faculty of Engineering and Green Technology
- Faculty of Business and Finance
- Institute of Chinese Studies

4. Have you heard Multimedia Courseware before?

(Multimedia Courseware is an educational software to let people learn some knowledge, it include text, animation, graphic, audio and video)

- Yes
- No

APPENDIX D

5. Have you learn Japanese language before?
- Yes
 - No
6. Which way do you prefer to learn Japanese language?
- Reading material (Newspaper, Magazine, Book, Comic)
 - Entertainment material (Anime, Movie, Music)
 - Japanese language class
 - Multimedia courseware
7. Have you face any problem while you learning Japanese language without using multimedia courseware?
(If yes, please go to Question 8, if no, please go to Question 9)
- Yes
 - No
8. What problems do you face while learning Japanese language without multimedia courseware?
(Please go to Question 9)
- Feel boring to learn Japanese language through textbook
 - Difficult to evaluate your understanding about Japanese language
 - Difficult to understand and learn the Japanese language
 - No voice teaching
9. Do you think multimedia courseware is the best way to learn Japanese language compared to textbook?
- Yes
 - No

10. Which functions of multimedia courseware can attract you to learn Japanese language?

- Learning
- Tutorial
- Quiz
- Game
- Attractive design and content

11. What is the problem of existing multimedia courseware?

- Lack of attractive about the design and content
- Did not provide enough lesson for users to learn
- Difficult to evaluate the understanding and ability of users
- Difficult to understand and learn the Japanese language

12. Do you think the existing multimedia courseware should provide the dictionary module for the future improvement?

- Yes
- No

Appendix E

Questionnaire – Multimedia Courseware for Learning Japanese Language Level 1
(After Development)

[Please place a “√” on the blank space]

1. Please specify your age

2. What is your Faculty/Institute?

- Faculty of Information and Communication Technology
- Faculty of Arts and Social Science
- Faculty of Engineering and Green Technology
- Faculty of Business and Finance
- Institute of Chinese Studies

3. How would you rate the background design of this multimedia courseware?

- Excellent
- Good
- Average
- Poor
- Very Poor

4. How would you rate the user friendliness of this multimedia courseware?

- Excellent
- Good
- Average
- Poor
- Very Poor

APPENDIX E

5. How would you rate the mini flash game in this multimedia courseware?

- Excellent
- Good
- Average
- Poor
- Very Poor

6. How would you rate the sound effect or background music used in this multimedia courseware?

- Excellent
- Good
- Average
- Poor
- Very Poor

7. How would you rate the understanding of this multimedia courseware?

- Excellent
- Good
- Average
- Poor
- Very Poor

8. How would you rate the functionality of each module in this multimedia courseware?

- Excellent
- Good
- Average
- Poor
- Very Poor

APPENDIX E

9. Will you use this multimedia courseware as your learning tool?

- Yes
- No

10. Does this multimedia courseware benefit to you in learning process?

- Yes
- No

11. What are the other comments you would like to provide for further improvement about this multimedia courseware?
