Making A Web-Based Visual Novel Game To Introduce The Library Of UNIKA Soegijapranata

Alfonsus Alvin L.K[1], Bernardus Harnadi[2], FX Hendra P[3]
[1,2,3,] Information Systems Study Program
Soegijapranata Catholic University
[1]16n20003@student.unika.ac.id

Abstract— As technology develops, its impact can be felt in human daily life. One of the aspects affected by the development of technology is the library. The library must be able to show that the library can also adapt as technology evolves. Of course this also applies to the library of Unika Soegijapranata, the game "mengenal perpustakaan" will help players get to know and learn about the facilities owned by the library of Unika Soegijapranata. The purpose of this research is to design and create a game that introduces the Unika library that is also interesting to play. This game is intended for the general public. So the planned game is going to be a web-based Visual Novel game using Ren'Py using various assets that are royalty free. For the surveys. The total subjects were 34 people, most of them were 22-24 years old. For the results of the survey, the results were valid and reliable. The correlation result says that Enjoyment and Effort Expectancy have a high correlation on Behavior Intention, while Performance Expectancy has a moderate correlation. The end result of this research is a visual novel game where players can read and answer quizzes about the library of Unika and the various facilities owned by them. To make the game interesting there are quizzes for each floor.

Keywords— game, mengenal perpustakaan, MySQL, visual novel, web-based.

I. INTRODUCTION

The library is a facility that has many functions which can range from a place to read books and do assignments to a gathering place for many students.

The library is a facility that is required by every educational institution. Of course this also applies to the Unika Soegijapranata library which is located at the Thomas Aquinas building. The Library of Unika Soegijapranata has various facilities that can help students study but many of its students are not aware of this. The high level of smartphone ownership among the younger generations makes libraries considered outdated by the general public.

The designing of the visual novel game "mengenal perpustakaan" game aims to make it easier for the general public to get to know theUnika Soegijapranata library and its various facilities.

While designing the game, there are few questions regarding the purpose of designing this game in the first place.
1. How to introduce the Library of Unika Soegijapranata along with the library's various facilities?
2. How to make the game interesting?
   Therefore these answers are concluded to answer the aforementioned questions.
1. Designing and releasing the game that introduces the library of Unika Soegijapranata along with its various facilities
2. Make a game that is interesting to play that is aimed to introduce the library.

II. LITERATURE REVIEW

GAME

A game is an activity or sport usually involving skill, knowledge, or chance, in which the player follows fixed rules and try to win against an opponent or to solve a puzzle [6].

But the meaning of game in the context of this proposal is a game that is programmed and run on a device that is not connected to the internet (offline) or must be connected to the internet (online) [14].

VISUAL NOVEL

Visual Novel is a game genre where the game conveys information through media of text and static images. In general the players are required to read text to understand the storyline and make choices that affect the game's ending [2].

WEB-BASED

Web-Based is a term used to describe applications that are made using markup language and require a server to be accessed via a web browser [1]. The markup language itself is a programming language that regulates the appearance of the text on a web page that can be seen in a web browser [12], some examples of markup languages are:
- HTML(Hyper Text Markup Language)
- PHP(Hypertext Preprocessor)
- JavaScript

UNIKA SOEGIJAPRANATA LIBRARY

The library in the Thomas Aquinas building which is located within the Soegijapranata Catholic University complex. Previously the library was housed in the Albertus building until 1990, after which the library moved to the Mikael building and finally in 2002 the library moved to the Thomas Aquinas building [9].

REN'PY

Renpy is a free, cross-platform, python-based visual novel game engine [10].

IRASUTOYA

Irasutoya is a free stock illustration stock website that can be used as a reference for finding images to use in PowerPoint presentations, banners, etc. [8].

ROYALTY FREE

Royalty free is the term used for property that is free to use. Normally if someone uses certain music or images in a video, the creator of the music or image will receive payment from the video maker to be able to include the music or image in the video, that payment is called a "royalty" [4]. Royalty free properties usually don't require any payments to use.

PHP

PHP (abbreviation of Hypertext Preprocessor) is a scripting language that is widely used for web development and can be embedded into HTML [15].

SQL

SQL or Structured Query Language is a programming language for storing and processing information in relational databases. Relational databases store information in the form of tables, with rows and columns representing data and various relationships between data values [3].

PHPMAILER

PHPMailer is a PHP library that is widely used for sending emails. Using this library people can send email using the "mail()" function or using Simple Mail Transfer Protocol (SMTP) [5].

HTML5

HTML 5 is a revision of the Hypertext Markup Language (HTML), the programming language used to describe and display Web pages. HTML5 was developed to overcome the compatibility issues found in the previous version, HTML4 [13].

III. RESEARCH METHOD

A playtest accompanied by a questionnaire is conducted for the data

collection process, the number of respondents obtained was 34 people.

The research starts with the game design proposal. After that the proposal will be submitted and the game design is started, if the game design is rejected, the proposal will be revised and the game design will be revised as well. If the game design is accepted, the research will proceed to the next step.

The next step is to make the game based on the approved proposal and game design.

After the game is finished, testing will be conducted, if the game is rejected, the game will be revised according to the suggestions received. If the game is accepted then the research will proceed to the final step.

For the final step, a report on game development will be made and the research will be completed. The flowchart for the research method can be seen on Figure 1.
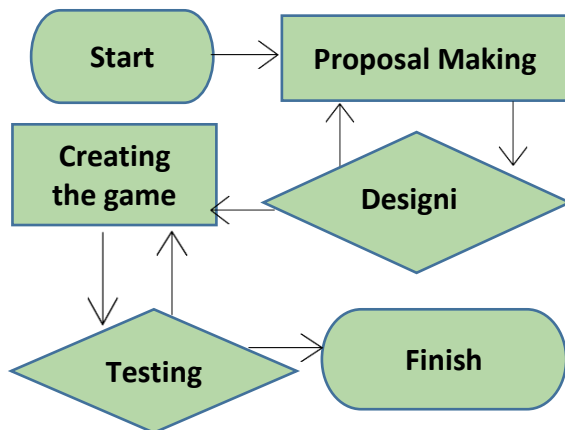

Figure 1. Research flowchart

IV. GAME DESIGN

Ren'py is used to create the game. The main reason Ren'py used is because of its ability to create HTML5 based games, a feature needed to create web based games [11].

In this game, the players listen to explanations regarding various rooms and facilities owned by the Library of Unika Soegijapranata.

The UI design is using various clip arts from Irasutoya. One of the UI can be seen on Figure 2.

Figure 2. Floor selection UI inside the game

The explanation will be delivered by. "Kak Lita", the guide for the library tour. The character for "Kak Lita" is derived from an asset made by "CRUG63R" called "Nozomi FREE Customizable VN Character". the aforementioned character can be seen on Figure 3 and the example of the character inside the game can be seen on Figure 4.

Figure 3. The character of Kak Lita

Figure 4. Kak Lita explaining

While listening to the explanation, the players will see various images associated with particular facilities or rooms that are being explained. One example of the photo can be seen on Figure 5.

Figure 5. One of the image for "ruang kompas"

Royalty free soundtracks made by shimtone (シムトーン) is used for the background music, few of the musics used for the game are:
- Felicia Blue - shimtone
- Little Promise - shimtone
- Tomorrow Place - shimtone
- 何気ない一日 - shimtone
- Noct- shimtone
- Behind the Stars - shimtone

After the player finished all the quiz and reached the maximum score, they can send their name and email to the library's MySQL database. Afterwards the player will receive an email from an automated address. The example of the email can be seen on Figure 6.

Figure 6. Example of an email being sent to a player

V. HYPOTHESIS DEVELOPMENT

● **Performance Expectancy (PE)**:
Performance expectancy will affect the **intention** to play "Mengenal Perpustakaan"
● **Enjoyment (EJ)**:
Enjoyment will affect the **intention** to play "Mengenal Perpustakaan"
● **Effort Expectancy (EE)**:
Effort Expectancy will affect the **intention** to play "Mengenal Perpustakaan"
● **Behavior Intention(BI)**:
The **intention** to play "Mengenal Perpustakaan"

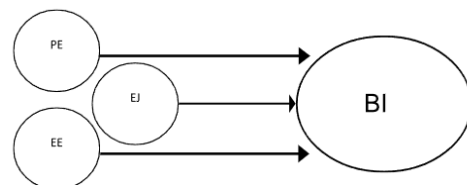The hypothesis model can be seen on Figure 7.

Figure 7. Hypothesis model

The data collection process is carried out by conducting a playtest and giving a questionnaire to the players after trying the game. There are 34 subjects overall. The Description Analysis can be seen on Table 1.

Table 1. Description Analysis

Age	21	22	23	24	25	26
Frequencies	1	5	17	8	1	2
Percentage	2.9%	14.7%	50%	23.5%	2.9%	5.9%

Gender	Male		Female	
Frequencies	25		9	
Percentage	73.5%		26.5%	

A. VALIDITY TEST

Factor analysis is used to check the validity of the respondents . By entering all the data into SPSS and using the rotated component matrix, SPSS can check which variables do

not match. The rotated component matrix table can be seen on Table 2.

Table 2. Rotated Component Matrix

Rotated Component Matrix^a

	Component		
	1	2	3
PE1	.134	.327	**.750**
PE2	.088	.003	**.921**
EJ1	**.784**	.296	-.177
EJ2	**.790**	.069	.122
EJ3	**.563**	.111	.466
EE1	.178	**.878**	.158
EE2	.190	**.768**	-.022
EE4	.214	**.676**	.239
BI2	**.669**	.289	.287
BI3	**.549**	.416	.260

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

After carrying out several checks, It is concluded that all variables that will be used for the reliability test are variables PE1, PE2, EJ1, EJ2, EJ3, EE1, EE2, EE4, BI2, and BI3.

B. RELIABILITY TEST

All the variables used are variables that have been proven valid in validity check. The Reliability test will be conducted by formulating the Cronbach alpha of each variable. The result can be seen on Table 3.

Table 3. Cronbach's Alpha result

Variables	Cronbach's Alpha	Consistency
PE	0.747	Acceptable
EJ	0.668	Questionable
EE	0.765	Acceptable
BI	0.702	Acceptable

Can be seen that PE, EE, and BI all have "Acceptable" consistency while EJ has "Questionable" consistency.

C. RELIABILITY CORRELATION

To test the correlation, first count the mean of the selected variables, after that the variable mean will be entered into SPSS to be tested. The result for the correlation test can be seen on Table 4 .

Table 4. Correlation Table

Correlations

		RPE	REJ	REE	RBI
RPE	Pearson Correlation	1	.306	.329	.431*
REJ	Pearson Correlation	.306	1	.482**	.639**
REE	Pearson Correlation	.329	.482**	1	.508**
RBI	Pearson Correlation	.431*	.639**	.508**	1

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Based on the test results can be concluded that Enjoyment and Effort Expectancy have a high influence while Performance Expectancy has a moderate influence on Behavior Intention.

VI. CONCLUSION

For the first question "How to introduce the Library of Unika Soegijapranata along with the library's various facilities?

By using a visual novel game where players can read information and answer quizzes about the Unika library and its various facilities.

For the second question "How to make the game interesting?".

Add quizzes on each floor to test player's knowledge of the Unika library. In addition, players who have got a perfect score can send their scores to the library database and the players are eligible to receive merchandise from the Unika library.

REFERENCES

[1] Adani, Muhammad Robith. (2018, Oktober). Aplikasi Berbasis Web: Pengertian, Jenis, Contoh, & Manfaat. https://www.sekawanmedia.co.id/blog/aplikasi-berbasis-web/

[2] Ahmad, Dzakwan. (2021, Augustus). Mengenal Lebih Jauh Game Visual Novel.

https://gamefinity.id/game/mengenal-lebih-jauh-game-visual-novel/

[3] Amazon. (© 2023). What is SQL? - Structured Query Language (SQL) Explained - AWS. https://aws.amazon.com/what-is/sql/#:~:text=Structured%20query%20language%20(SQL)%20is,relationships%20between%20the%20data%20values.

[4] Bailey, Jonathan. (2020, 10 Juni). The Difference Between 'Copyright Free' and 'Royalty Free'. https://www.plagiarismtoday.com/2020/06/10/the-difference-between-copyright-free-and-royalty-free/

[5] C. Ariata. (2023, Januari). Cara Kirim Email dengan PHP Mail dan PHPMailer. https://www.hostinger.co.id/tutorial/cara-kirim-email-dengan-php

[6] Collins. (© 2023). Game definition and meaning. https://www.collinsdictionary.com/dictionary/english/game

[7] FBE Universitas Islam Indonesia. (2019, September). Perpustakaan Di Era Generasi Milenial. https://fecon.uii.ac.id/2019/09/perpustakaan-di-era-generasi-milenial/

[8] FBS UNDIKSHA. Irasutoya - FBS - Undiksha. https://fbs.undiksha.ac.id/portfolio-item/%E3%81%84%E3%82%89%E3%81%99%E3%81%A8%E3%82%84-irasutoya/

[9] Perpustakaan Unika Soegijapranata. (2015). Profil Umum. https://lib.unika.ac.id/index.php?p=profil_umum

[10] Rothamel, Tom. (© 2012-2022). The Ren'Py Visual Novel Engine. https://www.renpy.org/why.html

[11] Rothamel, Tom. (© 2012-2022). Web / HTML5. https://www.renpy.org/doc/html/web.html

[12] Setyawantoro, Indra. (2016, Juni). Bahasa Markup dan Bahasa Pemrograman. https://www.indrasatya.com/2016/06/bahasa-markup-dan-bahasa-pemrograman.html

[13] Sheldon, Robert. (2023, April). What is HTML5?. https://www.techtarget.com/whatis/definition/HTML5

[14] Silvianita, Helva. (2022, Juni). Pengertian Game : Sejarah, Manfaat dan Jenis-Jenisnya [LENGKAP]. https://www.nesabamedia.com/pengertian-game/

The PHP Group. (© 2001 - 2023). PHP: What is PHP?. https://www.php.net/manual/en/intro-whatis.php.