

GAME AS MAJOR INTRODUCING MEDIA TO OPT FOR COLLEGE

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Abstract– Today's development requires people to have higher education and expertise in a particular field. Because of that, many universities or colleges begin to open new majors to suit the increasingly growing and diverse interests. However, the increasing number of majors could make it difficult for many high school students in determining the university or colleges and department they should take. A lack of understanding of their own personal interests and talents, as well as information about targeted universities or colleges and majors also enhance the difficulty of choosing.

Therefore, an interesting and simple media to help students to know their potential, to provide information about the majors according to their interests, and to help them determine the right path are needed.

The concept of this major introducing game is based on sources such as interviews with interviewees and questionnaires. In the game, players can find out their interests, talents and appropriate majors, as well as courses and professions related to those majors. Aptitude test in this game is based on Holland's Theory.

Keywords– interest, simulation games, university majors, talent, visual novel

I. INTRODUCTION

Today's development requires people to have higher education and expertise in a particular field. Because of that, many universities or colleges are launching new majors to suit the increasingly growing and

diverse interests. However, the increasing number of optional majors could make it difficult for many high school students in determining the university or colleges and department they should take. A lack of understanding of their own personal interests and talents, as well as information about targeted universities or colleges and majors also enhance to the difficulty of choosing.

There are various things to consider in choosing majors. The most important thing is interest. If a student is really interested in the course taken, they will be eager to follow the lesson and get the maximum results. Besides interest, the selection of majors must also be adjusted to the intellectual and financial abilities.

Mistakes in choosing majors can lead to the decreasing of student learning spirit because they feel forced to study in the department that has been taken, or students who eventually switch to other majors that are considered more suitable [1]. That's why it requires media that can help students to recognize their potential, to provide information about the majors appropriate to their interests, and to help them determine the majors that suit them in an interesting and simple method.

II. LITERATURE REVIEW

In choosing majors, there are several things to consider, their interest and talent, intellectual ability, financial ability, and

college reputation of the chosen majors. With these considerations, students are expected to choose the department that best suits their condition for the future.

2.1. Aptitude Test

Interests are the source of motivation that encourages people to do what they want if they are free to choose. When a person is concerned about something, then the interest will be a strong motive to connect more actively with something that interests him/her. Interest will increase if channeled in an activity. Attachment to the activity will further develop interest. According to Hurlock's opinion, the more often the interest expressed in the activity, the stronger it will be. Otherwise, interest will be extinguished if not distributed. Interest may be the cause of an activity and the results to be obtained [2].

2.2. Holland's Theory

Basic Concepts Personality according to John Holland is a result of heredity and environmental influences [3]. Manrihu [4] concludes that there are four assumptions that are the core of Holland's Theory:

1. Most people can be categorized as one of six types: Realistic, Investigative, Artistic, Social, Entrepreneur, and Conventional.
2. There are six types of work environments: Realistic, Investigative, Artistic, Social, Entrepreneur, and Conventional.
3. People investigate the environment that will allow or enable them to practice their skills and abilities, express their attitudes and values, and accept appropriate problems and roles.
4. The behavior of a person is determined by the interaction between his personality and the characteristics of his environment.

Holland himself develops several tests that can help people to know themselves, such as: The Vocational Preference Inventory in 1977 and Self-Directed Search in 1979 [5].

2.3. Visual Novels

Visual Novels is one of the subgenres of Adventure Game. Visual novels are interactive fiction games that use static

images, usually an anime image style. The difference between Visual Novels with other games is the minimal gameplay. Players only need to choose the option to create text, images, and sound running. Most visual novels have multiple storylines and endings based on the choice chosen by the player [7].

2.4. Construct 2

Game engine used is Construct 2 from Scirra. Construct 2 is a software-based game maker or game engine DirectX-9 for Windows that is designed to create 2D games. Construct 2 uses a visual approach that simplifies users with varying levels of proficiency to create games [8] [9].

Construct 2 allows users to publish their games to various platforms. Like Android, iOS, Web (HTML5), Windows, Mac Desktop, Linux Desktop, Blackberry 10, Facebook, Wii U and so forth. Construct 2 has the ability to display games that users are working on smartphones over WiFi networks. Construct 2 also provides voice editing and 70 special and realistic visual effects to add to the uniqueness of the game [10].

III. RESEARCH METHODS

Structured interviews were conducted with some high school counseling teachers to ensure game formulation that can help students determine their interests and talents.

Besides, questionnaires will be distributed before and after playing the game to 40-50 students of Theresiana High School Semarang.

IV. IMPLEMENTATION

4.1. Gameplay

There are various things to consider in determining the course majors as described in the previous chapter. Based on interviews with 5 teachers of private high school BK (Theresiana, Karangturi, Sedes, Kebon Dalem, and Don Bosko) and a survey of 50 high school students of Theresiana Senior High School Semarang, one of the main factors causing confusion in choosing

amajor is the lack of student knowledge about majors that corresponds to his interests and talents. In fact, some students are still unsure of their own interests and talents. For that reason, it is necessary to give the aptitude test to the students.

At the beginning of the game, the player will become a 3rd grade high school student who still has not determined what direction he will take after graduation. Seeing players who look moody, the player's character friend invites player to visit an Edu fair which happens to be ongoing. There, they will visit Unika Soegijapranata booth which offers aptitude tests. Players will be asked why they have not been able to make a choice.

If the cause is not aware of the interests and talents and the department that suits them, players will be given a few questions to determine their interests and talents. Furthermore, players will be explained about the majors that suit their interests and talents. Information to be provided includes courses that will be given and professions that can be pursued after graduation. With the information provided, it is expected that the player can determine whether the course is in accordance with his/her interests and whether he/she is able to go through it. If they are not sure yet, players can look around other faculty and ultimately determine which majors best suit them.

For players who have difficulty determining due to disagreement with parents, it is expected with the information provided, players can decide whether the course specified by the player's parents is good enough and can be taken, or stuck with their opinion and can use that information to explain to their parents the advantage of the majors they choose.

For players who have difficulties due to financial reasons, will be given some explanations about the scholarships that generally exist in college. As for players who already know what majors they want to take and just want to know what kind of majors they will take, they can go directly to the major introductions.

4.2. Game Making

This visual novel game was created with game engine Construct 2 and Photoshop and PaintTool Sai to create sprites and images.

The main page or title page is the main display that will appear once the game starts. The title page contains the cover and some menu options such as Start, Load, Credits, and Quit as shown in Figure 4.1.



Figure 4.1 Title Page Display

The start button will bring the player to the second event sheet where the game will start, while the load button can be used by players who have already played and stored data in the game to continue the game from the last stored checkpoint. The credits button contains the sources used in the game and the quit button can be used to exit the game.

Before brought to the second event sheet, there is a momentary pause of loading page. Loading page contains pictures of one of Soegijapranata Catholic University buildings, loading posts, and one of 3 characters that will appear randomly. Loading page will switch to 2nd layout automatically after few seconds.

The second event sheet is the beginning of the game where players will see the class view and read the storyline that has been created. In a conversation, the text will change after the player has taped the screen. The image of the characters and the text that appears will change according to the specified variable.

Figure 4.2 shows the code used in the story, while Figure 4.3 shows the in-game conversation view.



Figure 4.21 Conversation Event



Figure 4.3 Conversation Display

After the opening conversation is over, the screen will switch to Layout 3 which contains a mini game of drag and drop to determine player's interest and talent.

Variable *xtemp* and *ytemp* are used to store the *x* and *y* positions, while the *xsizetemp* and *ysizetemp* variables are used to store the initial size of the icon. Variables *R*, *I*, *A*, *S*, *E*, *C* are used to add values to variables and *scoreR*, *scoreI*, *scoreA*, *scoreS*, *scoreE*, *scoreC* are used to store the total value added. Figure 4.4 shows the variables used in event sheet 3.

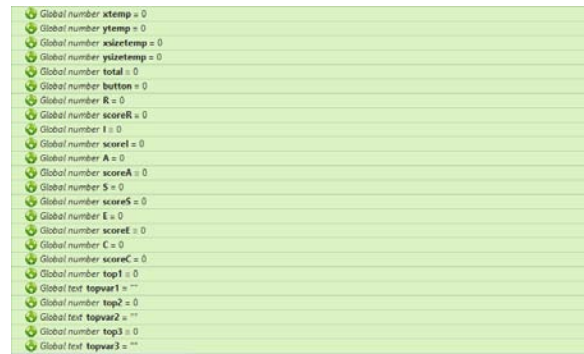


Figure 4.42 Event Sheet 3 Variables

All icons are set in position frame 0 so the icon image first shown when the mini game starts is the first icon. Figure 4.5 shows the code used at the beginning of the layout and Figure 4.6 shows the game view at the beginning of the layout.

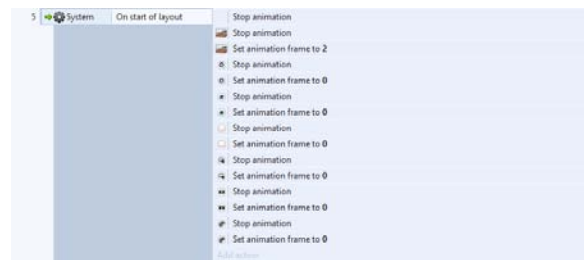


Figure 4.5 Event Sheet at The Start of Layout

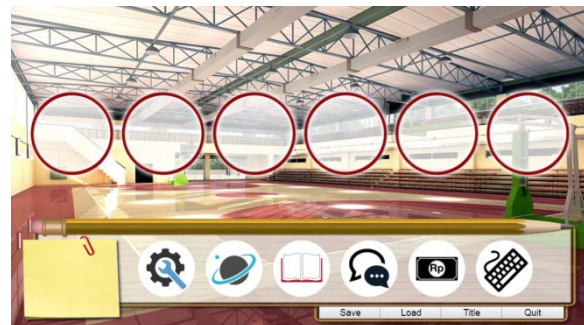


Figure 4.6 Mini Game Display

When the icon is dragged, previously invisible captions will appear, the text will be invisible again when the icon is released. When an icon is dropped into one of the 6 available frames, the icon size changes according to the frame size and the *R*, *I*, *A*, *S*, *E*, or *C* values will increase according to the icon and the location of the existing frame. The first icon changes the value of *R*, the second icon changes the value of *I*, the

third icon changes the value of A, the fourth icon changes the S value, the fifth icon changes the value of E, and the sixth icon changes the value of C. The first frame is 5, the second frame is 4, the third frame worth 3, the fourth frame is worth 2, the fifth frame is worth 1, and the sixth frame is worth 0. If the icon is dropped to a place already filled with another icon, the first icon will be replaced with the second icon and the first icon will return to the starting position. Figure 4.7 shows the game display when the icon is dragged, while Figure 4.8 shows the code used in the drag and drop game.

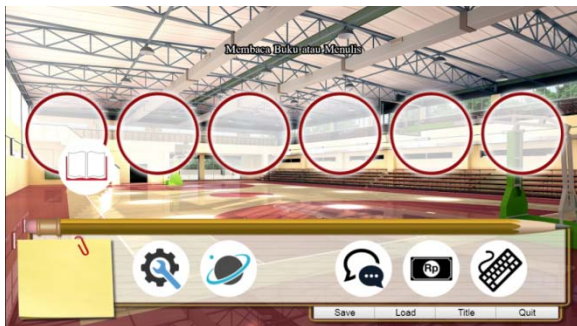


Figure 4.7 Mini Game Display 2



Figure 4.8 Drag and Drop Event Sheet

When an icon is inside a frame, the total variable will increase 1 value, and after the total value is 6, or all icons are in the frame, the next button will appear.

When the next button is clicked, the icon image will change to the next frame and return to the starting position. The values in the R, I, A, S, E, and C variables will be stored in scoreR, scoreI, scoreA, scoreS, scoreE, and scoreC variables. The variable button value will also change. Figure 4.9 shows the code that will be executed when the next button is clicked.

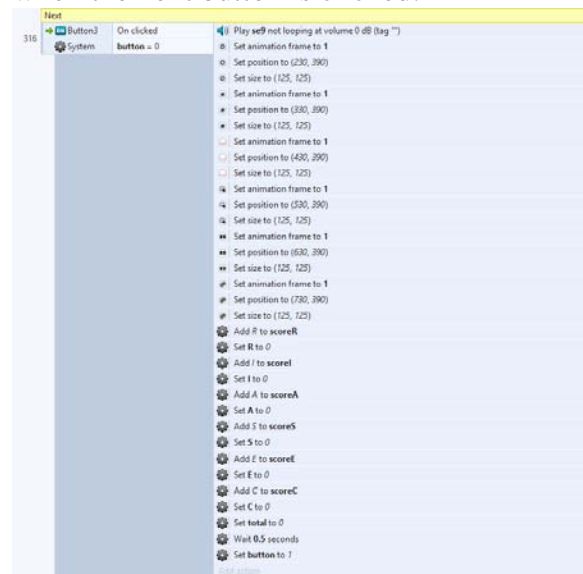


Figure 4.93 Event Sheet When Next Button is Clicked

The event will be looped for 4 times, and after all values are stored, those values will be compared to get the 3 highest values. The layout will move to Layout 4.

After the last button is clicked, all values will be compared to determine the 3 highest values like the code in Figure 4.10.



Figure 4.104 Event Sheet to Determine The Highest Value

Results will show 3 categories with the highest score. If a player clicks on a certain category, the picture will change to the explanation of the category. The explanation of each category contains the characteristics, majors and occupations that match the category.

When finished viewing the results, players can click the next button to continue the game and go to layout 5. In layout 5, players will be given the option to repeat the test or look at the information of existing majors.

There are 13 majors available at Soegijapranata Catholic University, which are Architecture, Communication Visual Design, Law, Communication, Civil Engineering, Electrical Engineering, English Literature, Management, Accounting, Food Technology, Psychology, Informatics Technology, and Information System.

After determining the majors desired, there are 3 choices of graduate competence, curriculum, and graduate profile. Graduate competence is the ability to be gained after graduating from the majors, curriculum contains courses and some explanations related to the majors and the profile of graduates containing work related to the majors chosen.

4.3. Survey Result Discussion

After the game was over, the game was tested to 40 Theresiana 1 Semarang high school students and then being surveyed to determine the effect of the game on them.

From the first question, it can be seen from Figure 4.11 that from the 47 students who become respondents, 70.2 percentis from class XII and the remaining 29.8 percentis from a mixture of students of class X and XI.

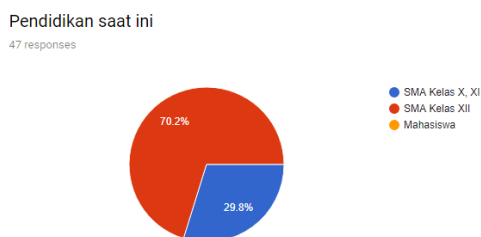


Figure 4.115 Post-Test: Respondents Education

The second question asked whether the game provided the information the respondent wanted to know. Viewed from Figure 4.12, 78.7 percent of respondents felt that the major introduction had given the information they wanted, while the remaining 21.3 percent felt they had not received the desired information.



Figure 4.126 Post-Test: Has Game Delivered The Desired Information

The third question asked whether the major introduction game helped the respondent in determining their choice of majors. Based on Figure 4.13, 76.6 percent of respondents feels it is helpful in determining the choice of majors, while the remaining 23.4 percent feel it is unhelpful with the game.



Figure 4.13 Post-Test: Does Game Help Them To Determine Major

On a scale of 1 to 5, how does the game help in providing information about majors? From Figure 4.14, it can be seen that most of the respondents feel it is quite helpful, although there are still some respondents who feel not helped by the information presented.



Figure 4.147 Post-Test: How Much Game Helped in Providing Information About Majors

The fourth question is with a scale of 1 to 5, how much the game helps in determining the choice of majors? From Figure 4.15, it appears that most respondents feel the game is quite helpful in determining the major they will choose later. However, there are also some respondents who feel not helped after playing the game.



Figure 4.15 Post-Test: How Much Game Help in Determining Major

The last question asked about the shortcomings that the respondents found after playing the game. Some criticism and suggestions were received by respondents are too long explanations, more interesting display, and gameplay that needed to be extended.

V. CONCLUSION

Based on interviews conducted on 5 private high school counseling teachers and questionnaires conducted on 50 Theresiana 1 Semarang high school students before the making of the game, the major introduction game is created on the mobile platform with visual novel genre. Major introduction game also includes aptitude test in the form of drag and drop mini games to help students recognize their interests and talents in order to help them determining major to be taken.

The aptitude test is based on Holland's Theory that classifies personality type and work environment into six types, namely: Realistic Type, The Investigative Type, The Artistic Type, Social Type (The Social Type), The Enterprising Type, and the Type of Routine (The Conventional Type). Each personality type is the result of the interaction between internal and external factors which then gives birth to a strong interest that fosters certain abilities and skills. This combination of interests and abilities creates a very personal disposition to interpret, act, think, and act in certain ways. To determine the disposition, the Self-directed Search method developed by Holland was used.

After knowing their interests and talents, students can see available information related to majors that match their test results. However, the test results are not binding and students can still see information related to other majors. Information provided in the form of graduate competence, graduate profile, and curriculum or courses taught in each major.

The results of the questionnaire after the students played the game showed that 78.7 percent of the respondents thought the introduction of the majors had given the information they wanted to know. Most of the respondents also felt that the game was quite helpful in the delivery of information.

Furthermore, 76.6 percent of the respondents considered that the major introduction gamewas quite helpful in determining their majors. However, there were still some respondents who felt less helped and still not able to determine their major.

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