

**HIDDEN ESCAPE: DEVELOPING A HIDDEN OBJECT GAME
USING A GAME DEVELOPMENT FRAMEWORK**



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OCTOBER 2013

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A Thesis / Research Project

Presented to

The Faculty of the Computer Studies

Ateneo de Davao University

In Partial Fulfillment

of the Requirements for the Degree

Bachelor of Science in Information Technology

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Hidden Escape: Developing a Hidden Object Game Using a Game Development Framework

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ABSTRACT

Hidden Object Games (HOG) are one of the most popular genres of casual games because of its simple point and click gameplay and its attractive interface. For the Hidden Escape, it will use a framework that will start with the market research, conceptualization of the gameplay and story, designing the multimedia components of the game, implementation of the concept and design, and testing of the game. From the results that were gathered, it shows that the players who tested the game gave favorable reviews. The study has shown that using this game development framework was useful in creating a hidden object game that people would like to play.

Key Words and Phrases: Hidden Object Game, Game Development, Game Framework

1 BACKGROUND OF THE STUDY

Mobile games are one of the excellent sources of entertainment. One of the most addictive genres of mobile games are casual games. Casual mobile games are usually designed for the players that do not want to devote a great deal of time to play the game. They can play the game in their vacant and convenient time and easily to put the game down if the player is done. Every month, an estimated 300 million consumers play the casual games. In 2009, casual games industry had revenues in excess of \$3.0 billion on mobile, iPhone, iPad, social net and etc. By 2014, the casual games market is poised to become an \$8.64 billion industry. Also currently, hidden object games are one of the most addictive casual games and it is slowly becoming popular and in the market. With these facts, the proponents decided to develop a game development framework in making a hidden object game. Using this framework, game developers can develop a hidden object game that people would like to play.

2 TECHNOLOGY APPLICATION CONTEXT

The present study seeks to address the problem on the game development process for games. As statistics show, there are 10 million monthly active users that play Hidden Object games and because of this big number of players, it is a need to study how to make a marketable hidden object game. Since everyone can be an inspiring game developer and upload their games on the market, most of those games that are being developed do not hit the market because they do not consider marketability in their game development process.

This game development framework focuses on making a hidden object game that people would like to play. This framework first considers on identifying what the users want. After identifying this, the game will be made based on the results of what the users want. Applying this to the gameplay, story, graphics and audio, it will make the game marketable. The proponents have decided to implement the game in a HTML5 based game engine, Construct2. To be able to run it on the iPad, it will be exported as a native mobile app, CocoonJS.

The proponents decided to develop a hidden object game that would show the importance of using a game development framework to be able to make a marketable game. This topic can be helpful in game development so that other developers can know the different steps in creating a marketable game.

3 OBJECTIVES OF THE STUDY

The general objective of this research is to develop a Hidden Object Game using a game development framework

The specific objectives are:

- To conduct a market research to be able to know the target market.
- To create a story using the five plot point structure
- To apply the different photo-realism techniques in achieving a realistic 3D render.
- To use immersive sound effects and background music in providing feedbacks, warning and clues to a player.
- To conduct an alpha test to be able to know the marketability of the game.

4 SIGNIFICANCE OF THE STUDY

Today, one of the leading brands of devices in the market is Apple because of its applications. 67% of applications on Apple are paid versus 34% on other brand and that gets the developers paid. The proponents decided to create a hidden object game because this kind of game is rapidly in demand in the market. Also, with its high demands, this study can contribute to other developers who are stepping in the

field of game development and want to market them. This will be using a game development framework to have an organized process in making a marketable game, in which other developers can follow.

5 SCOPE AND LIMITATION OF THE STUDY

This study will focus in developing a marketable hidden object gamethat will be using a game development framework. This framework will go through five phases. The market research phase will be about knowing the target market. The conceptualization phase will be about making the gameplay and story of the game. The design phase will be about making the graphics and audio of the game. The implementation phase will be the programming of the game using Construct2. The testing phase will be about conducting the alpha test.

6 REVIEW OF RELATED LITERATURE AND TECHNOLOGY APPLICATIONS

Nowadays, game development is rapidly increasing and it is evolving depending on the player's interest. In game development, a framework is essential because it's a process in which a game can be made in an organized way.

6.1 HoloRena: a framework for developing flow-driven web-based educational games.

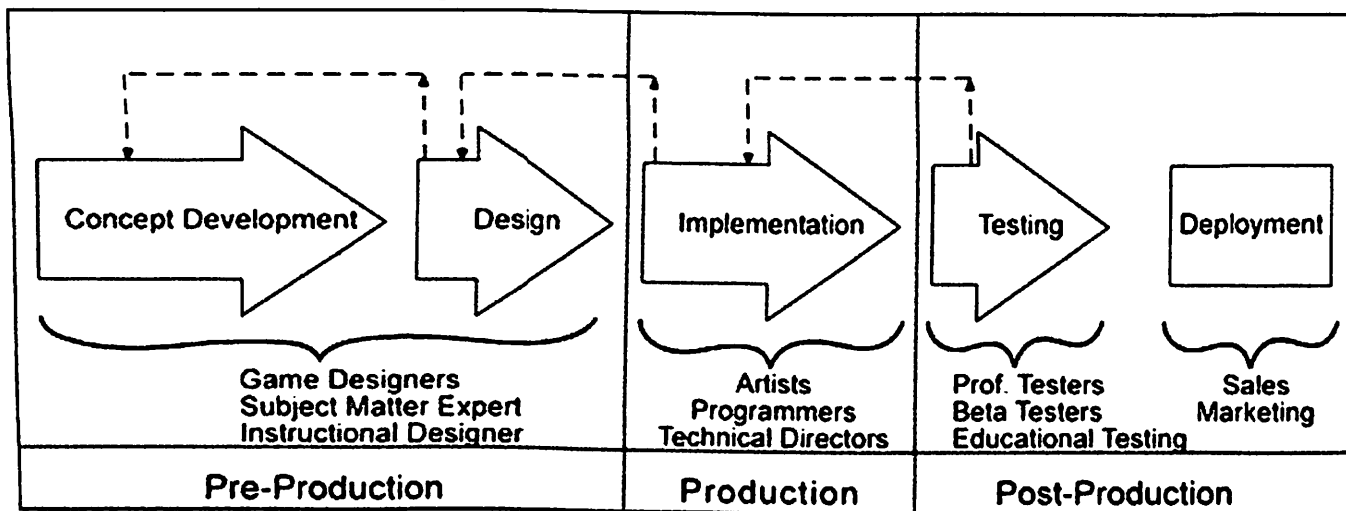


Fig. 1. Game Development Process of HoloRena

There was a research made by Juracz, L., G. Pap, L. Howard, and J. Johnson about HoloRena: a framework for developing flow-driven web-based educational games. They made a game development process that goes through the pre-production phase which consists of the concept development and design. Then the production

phase will be done which is the implementation. The last phase, which is the post-production, consists of the testing and then deployment. They proposed this game development framework that supports the isolation of the presentation interface from the content of the story, supports the concept of the reusable, skinnable components, and facilitates rapid modifications and creation of products.

6.2A study to design a low cost and marketable game

There was a study made by Jude Joseph Lamug Martinez and Erwin Adi from the School of Computer Science of Binus International – Binus University, Jakarta Indonesia that is about designing a marketable game. In their study, they found out that most of the games consist of several mini games and they are not related to each other. Also, they mentioned that storyline, uniformity of title, themes, format, and graphic, and gameplay are important to make a game marketable. To address on what they found out in their study, they made a game called “Journey to the Indonesian Culinary”. They made the storyline clearly stated from the beginning up until the end and made it interesting to attract the player. They said that unique, fresh, and new ideas are to be added to the game to create that fun factor to- the game.

6.3 Game Development Essentials

There was a research made by Cheryl Campanella Bracken and Paul Skalski from the Clevelan State University about that the player strongly prefers more realistic graphics in video games. Graphics provides the feeling that the players are part of the game environment. In the research that they made, the results provided evidence that graphic quality in video games has an effect on participants’ sensation of some dimensions of presence.

6.4 Presence and video games: The impact of Image quality and skill level

Game audio can range from sampled sound such as music and sound effects based on the book entitled Game Development Essentials by Jeannie Novak. Also audio is one of the important factors to heighten the satisfaction of the player and will help to enhance the game. Game audio has an immersive effect that cannot be felt by the player with graphics alone. Game sound effects should be made to provide feedback, warning, and clues to a player. Game background sounds are used to produce a realistic atmosphere to make the player feel that they are in the game.

6.5 Construct 2 vs GameMaker vs GameSalad vs Stencyl

An article made by John Bura that talks about the pros and cons of the different 2D game engines, Construct 2, GameMaker, GameSalad and Stencyl. Stencyl is a non-programming engine that makes flash games that is very easy to

use but it is hard to use as a commercial platform since flash is not being supported anymore. GameSalad is a very streamline engine that makes game development extremely easy but it lacks the updates and features. GameMaker has a feature that has an interface in which you can program but there are times that its feature might not work the way you want it to. Construct 2 can create any games that you want with them. They have upgraded to WebGL that makes the performance very great, you can export your game to HTML5, Chrome Store, PhoneGap, CocoonJS, and Scirra Arcade and it's the updates happens regularly. The only problem is that there are bugs and sometimes a feature doesn't work exactly the way you want it to. With all these game engines, Scirra's Construct 2 is the best by far.

7 PROJECT METHODOLOGY

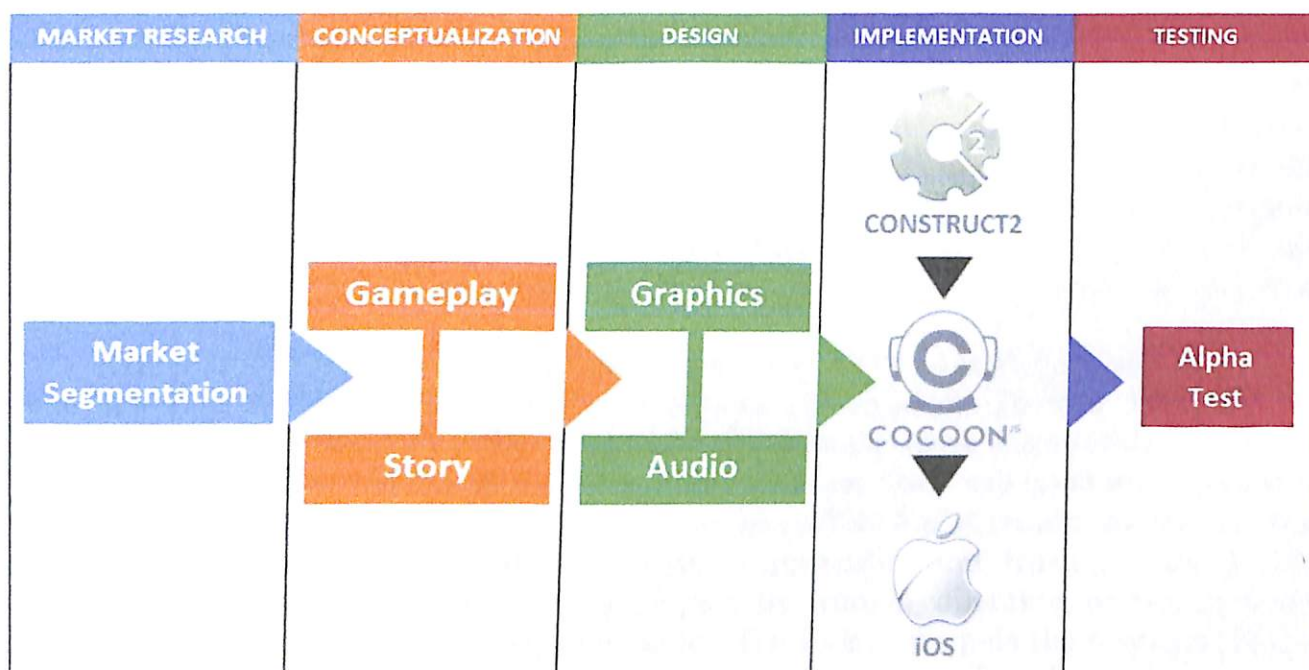


Fig. 2. Game Development Research Design.

In developing a game, there are different proper processes to be followed. In developing our hidden object game, the proponents will have to do four phases, which are the market research phase, conceptualization phase, design phase, implementation phase and testing phase.

7.1 Marketing Research Phase

In the first phase, the market research phase, the identifying of the target market of the game will be done. To be able to know the target market of the game, the market segmentation strategy is used. This is done to be able to know the market

needs and market size. Based from the survey that was conducted, the potential target markets for hidden object games are women ages 17 – 25 years old.

7.2 Conceptualization Phase

In the second phase, the conceptualization phase, the planning of the concept of the gameplay and story will be made. The gameplay and story will be based on the market research that was made. It will be made according to what the users want. Since the target market wanted something new and unique, the proponents added something new to the gameplay. The first new gameplay added is that the objects can be found in more than one area. It will only depend on the scene on how many areas will be used to find the objects. Another is the clue system in which the hidden objects will be found based on clues only and it will not give the list of objects to find. And for the hint system, it will only give a more specific clue on where to find the object and not give the exact location of the object.

The gameplay consists of the rules and mechanics, complexity. The rules and mechanics of the game should be clear and that the player can easily understand it. For the Hidden Escape, the clues given were made clear enough for them to be able to know that objects to find. The complexity of the game should increase as the game progresses to another scene. For the Hidden Escape, complexity is applied through making the players find more objects and more places to find them as the level increases.

The story of the game used a screenplay structure called 5 plot points because these are the building blocks behind sequence construction. In this structure, the story will have a main problem. This story will become more interesting because as the main characters will try to solve the main problem, they will meet more problems until they will be able to solve their main problem. The 5 plot points are the inciting incident, lock in, first culmination, main culmination and third act twist. The inciting incident is the premonition of impending trouble, dilemma, or circumstance that will create the main tension of the story. The lock in propels the protagonist into a new direction in order to accomplish his/her new objective. The first culmination is a pivotal moment in the story but not as critical as the Lock In or Main Culmination. This is the part where the second highest hurdle to be faced. The main culmination brings the main tension to a close while simultaneously helping to create a new tension. The third act twist is an unexpected turn of events in the third act. Also, it can be the last test of the hero.

For the Hidden Escape, the main problem of the characters was that they were kidnapped and they were in a cell tied up and they have to find a way to escape. This is the first plot point, the inciting incident. After they escaped from the cell and tried to find a way out, they experience another problem and that Joyce fell in a hole. This part is the second plot point, the lock in. After finding objects to help pull out

Joyce, John saw a stranger, named Rick, who he thought tried to hurt Joyce and had a little fight. Then John knew that he just came to help and lead them to the exit. When they reached the exit, they experienced another problem that the exit was blocked and have to find another exit. This part is the third plot point, the first culmination. After knowing that the exit was blocked, they tried to find clues on how to escape. As they were trying to escape, John overheard in a room that Rick might be the mastermind of the kidnapping. When John tried to tell Joyce about what he heard, Rick came and John tackled him. This made John and Joyce fight and had their separate ways. This part is the fourth plot point, the main culmination. As John was trying to escape alone, she suddenly heard Joyce scream and he went to the source of the scream. There he saw Rick and the kidnappers with Joyce being tied up. Now, John will have to find objects that would help save Joyce. This is the fifth plot point, the third act twist.

7.3 Design Phase

In the third phase, the design phase, the different multimedia elements will be made. In developing our game, the proponents should be able to make the proper graphics and audios.

The audio will contain sound effects and music that will provide the feedback, warning and clues to the player. For the hidden escape, whenever the player finds an object, it will play a sound effect signaling the player that the object was found. Also, whenever the player finds an object that the player won't be able to get it yet, it will play a different sound effect. Also, the background music is chosen based on the feel of the story. For the Hidden Escape, the background music used is thrilling because the story is about trying to escape.

The graphics are in simulated 3D to be able make the scene more realistic, since the target market wanted hidden object games to be realistic. In order to achieve this realistic design, photo-realism techniques are used. These techniques are beveling, IES light profiles, specular maps, grunging, and asymmetry. In beveling, objects should have beveled or chamfered edges. In IES light profiles, it digitally quantifies photometric lighting data to mimic real world lighting. In specular maps, it the part of the model in which it should have high glossiness and which should be more diffuse. In grunge, the objects should have some dirt or grit to it. And in asymmetry, it is having a little bit of differences to the model.