Conference Paper

E-commerce Simulation Game as an Entrepreneurial Learning Medium

Joko Samodra, Arif Sutrisno, and Rahmati Putri Yaniafari

Universitas Negeri Malang, Malang, Indonesia

ORCID:
Joko Samodra: http://orcid.org/0000-0001-9449-7828

Abstract

The entrepreneurial spirit of students needs to be cultivated as it can help them to open various opportunities, explore self-potential and earn maximum income, and help the society to create new jobs. Entrepreneurial activities must be well planned and analyzed, and outlined in a business plan to increase the chance of success and minimize the risk. It is difficult to provide real entrepreneurial experiences in courses. Therefore, supporting media is needed. The aim of this research was to produce a simulation game application which provides students with a virtual entrepreneurial experience, in a form of e-commerce. The ADDIE development model method was used, which divided the development stages into five steps: Analysis, Design, Development, Implementation and Evaluation. The final product was a simulation game application that requires the player to carry out 5 stages. The player must create a business plan by deciding and modifying the values of the various variables provided in each stage. Validation by an expert in the content showed that the game was categorized as very good as they obtained an average score of 4.36 (on a scale of 0-5). Meanwhile, the expert in media obtained an average score of 4.47, which showed the game as very good. Moreover, this game application was well received by the users and their average score was 4.53.

Keywords: simulation game, e-commerce, entrepreneurship, entrepreneurial

Corresponding Author:
Joko Samodra
joko.samodra.fs@um.ac.id

1. Introduction

Entrepreneurship is the ability to make something unique, novel, and useful [1]. An entrepreneur should be able to organize, manage, and should be brave enough to take risks. An entrepreneurial spirit needs to be cultivated, as it can open up opportunities to achieve the goals, explore self potential, earn maximum income, and invent new jobs [2]. To increase the chances of success and minimize risks, entrepreneurial activities must be well planned and analyzed, and also outlined in a business plan [3]. The business plan includes the analysis of the marketing, production, and human resource,

also business development plans, financial analysis, as well as the business risk and impact analysis.

It is difficult to provide the students real experience of entrepreneurial activities in the classroom course because it requires capital and supporting equipment, takes a long process and time, requires several areas of expertise that must work together under a system, and also has the risk of losing capital due to the business failure. Therefore, a supporting media that can provide the students with virtual experience of entrepreneurial activities is needed.

In this study, a learning media in the form of a simulation game application has been developed. Game is chosen as the medium because it is attractive and most of the time, it is used for entertaining. Moreover, simulation genre is chosen because simulation game depicts many things in real life with various factors in details. Thus, it is expected that a simulation game application can provide the students a virtual experience of entrepreneurial activity, especially e-commerce will be obtained.

2. E-commerce

E-commerce (electronic commerce) is a business activity which consists of the process of selling, buying, or marketing goods and services that carried out electronically through the internet network [4]. E-commerce began to be known in 1994, when the electronic banner was first used for promotional and advertising purposes on a website. In its development, there are several forms or models of e-commerce including B2B (*Business to Business*), B2C (*Business to Consumer*), B2G (*Business to Government*), and C2C (*Consumer to Consumer*). B2B is an e-commerce model that is carried out between an organization or company and another organization or company, on the other hand, B2C is an e-commerce model that is carried out between an organization or company and the consumers directly [5]. B2G is another e-commerce model that is carried out between an organization or company and a government agency. Meanwhile, C2C is an e-commerce model that is carried out individually between a consumer and another consumer(s).

The main media that is used to run e-commerce is a website equipped with the required applications. Some of the application systems are email, instant messenger, content management, accounting and financial, delivery, electronic payment, and various applications.

3. Game

Game is an application that is played with certain rules to achieve a certain goal, and generally run in a non-serious context or just for fun. However, in its development, game is also widely used for learning purpose which is called educational games. Games can be categorized into its genre, including:

1. Action Shooting [6], is a type of game that its contents are in a form of shooting, hitting, or stabbing, depends on the story and characters; for example, Point Blank, Counter Strike, Crysis.

2. Adventure [7], is a type of game that undertakes an exploration such as climbing, exploring forest, jumping on a cliff, swinging from one tree to another, fighting against wild plants or animals, etc; for example: Kings Quest, Space Quest.

3. Strategy [8, 9], is a type of game that gives the players control to plan various things to achieve certain goals, depends on the theme of the story. Example: Warcraft, Red Alert.

4. RPG (Role Playing Game) [10], is a type of game that emphasizes on the characters in the game and as the time goes by, it may change and develop as the player wants in various parameters and usually it is determined by levelling up, such as intelligence status, speed and strength, weapon strength, and number of friends. For example: Final Fantasy, Dungeon Hunter, Ragnarok.

5. Sport Game, is a type of game that is adapted from a real life sports games; for example: PES (Pro Evolution Soccer), Mario Kart, Tenis.

6. Simulation Game [11], is a type of game which depicts real-world life and pays attention to the details of various factors such as looking for a job, building a city, setting income tax, or building a city and solving problems, with limited fund. Based on those characteristics, simulation games can be used as supporting media in a learning activity [12]; for example: The Sims, Metropolis Mania, Zoo Tycoon

4. Method

This study used the ADDIE development model, which divides the development stages into five steps, including Analysis, Design, Development, Implementation, and Evaluation [13]. The ADDIE development model is a development model that produces an effective product since it includes a revision or evaluation in every step, so that the

product obtained is good and effective. Moreover, this development model is also considered as sequential and interactive, as well as easy to be implemented.
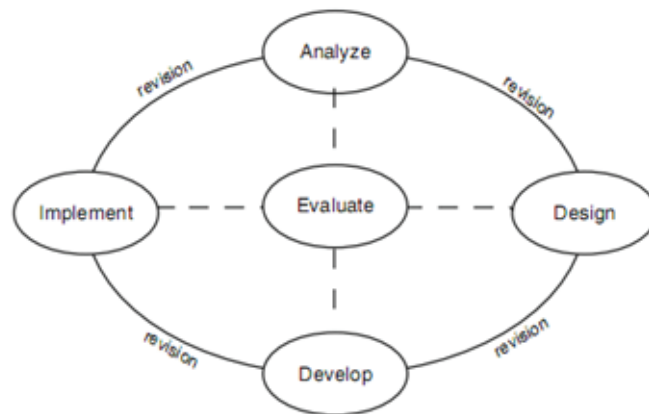

Figure 1: The ADDIE Development Model Diagram

5. Results and Discussion

The final product is a game simulation application that aims to provide students a virtual experience of entrepreneurial activity, especially e-commerce. The main framework of this simulation game is adopted from the marketing principle proposed by Stanton, which is a business system aims at planning, pricing, promoting, and distributing goods or services to satisfy both the existing and potential buyers' need [14].

Five main stages must be done by the players to carry out the e-commerce business. In each stage, the players must create a business plan that is done by setting the values of the various variables provided. The stages are:

1. Stage 1: determining the product type and specification. The variables that must be set by the players are the product type and material that is going to be produced.

2. Stage 2: determining the target market geographically. The variable that must be set by the player is the geographic location of the target market.

3. Stage 3: determining the product price including the Cost of Goods Sold (COGS), Margin, and Selling Price. The variables that must be set by the players are the Cost of Goods Sold (COGS), Margin Percentage, and Selling Price.

4. Stage 4: determining the strategy and promotional media that will be used. The variable that must be set by the players is the type of promotional media that is going to be used.

5. Stage 5: distributing the product to the consumers. The variable that must be set by the player is the type of courier that will distribute the product to the consumers.

After the product was developed, validation from expert of media and experts of material was carried out. The average score obtained from expert of material was **4.36** (on a scale of 1-5). It showed that the game simulation's material could be categorized as very good. On the other hand, the average score obtained from the expert of media was **4.47** (on a scale of 1-5), and it showed that the game simulation's media quality could be categorized as very good.

The last stage was the product try out on a limited scale which was done to fifty students who were taking entrepreneurship course. The average score obtained from the try out was **4.53** (on a scale of 1-5), which showed that game simulation was very well received by the users. Further try out results are presented in table 1 below.

TABLE 1: The results of the tryout

No	Aspek	Penilaian	Rerata Skor (skala 0-5)
1	Design	I am interested in the game	4,4
		I like the colours in the game	4,5
		I can read the text in the game	4,7
		The pictures on the game are easy to understand	4,7
2	Presentation	I understand the purpose of the game	4,1
		The game is easy to play	4,9
		The text in the game is easy to understand	4,6
3	Learning Process	I can learn from the game	4,4
		I feel happy playing the game	4,5
Average Score			**4,53**
Assessment Criteria			**Very Good**

6. Conclusions and Suggestions

This research generated a simulation game application to provide the students virtual entrepreneurial experience, especially e-commerce. The main framework of the game simulation was adopted from the marketing principle proposed by Stanton. The average score obtained from the expert of material was **4.36** (on a scale of 0-5) and categorized as very good. On the other hand, the average score obtained from the expert of media was **4.47** (on a scale of 0-5) and categorized as very good. Based on the try out results,

it showed that this game application is very well received by the users, shown by the average score of **4,53** (on a scale of 0-5).

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