ADVENTURE GAME DEVELOPMENT AS AN ALTERNATIVE DRUG SOCIALIZATION IN BNN CITY BANDUNG

R. Irvan Nur Firdaus[1], Angga Setiyadi[2]

[1,2]Informatic Engineering - Indonesian Computer University
Jalan Dipatiukur No. 112-116, Coblong, Lebakgede, Bandung,
Kota Bandung, West Java 40132
E-mail : irvan.nurf@yahoo.com[1], angga.setiyadi@email.unikom.ac.id[2]

ABSTRAK

Drugs are short for narcotics and drugs / hazardous materials. Nowadays drugs have been widespread in Indonesia with various types and forms. According to the National Narcotics Agency document of 2014, as many as 20.37% of drug users are students and students. The role of the National Narcotics Agency in the prevention and eradication is very large, the article of the lay community requires socialization about the types and dangers of drugs. Based on the results of previous studies that the method is very suitable to serve as *game* media to convey the material. With so many teenagers using Android as mobile technology in Indonesia, Android becomes the most suitable platform for the implementation of this socialization game. Based on the results of previous studies that the method is very suitable to serve as *game* media to convey the material. After the implementation, alpha and beta testing can be concluded that this socialization game can help users in recognizing the type, the impact of drugs and provide an overview of the consequences obtained when using drugs and help the National Narcotics Agency in disseminating drugs to children.

Kata kunci : Media Dissemination, Drugs, National Narcotics Agency, Adventure Games, Android.

1. PRELIMINARY

National Narcotics Agency (BNN) is a non-ministerial government institution responsible for the implementation of government Indonesia in the field of prevention, eradication and illicit traffic in psychotropic substances, precursors and other addictive substances addictive kecual materials for tobacco and alcohol. Drugs are short for narcotics and drugs / hazardous materials. In addition to drugs, the term introduced especially by the Ministry of Health of the Republic of Indonesia is a drug that stands for Psychotropic Narcotics and Addictive Substance. According to Saras Putri Utami as a drug instructor in BNN Bandung said that drugs are also a psychotropic that can be used as a sedative or painkiller during the operation. But now the perception is abused because of the pemakian that has been outside the dose limits, such as the use of excessive drug intoxication. Until now the spread of drugs is almost the entire population of the world can easily get drugs from irresponsible elements such as smuggling cases by foreigners from China who managed to smuggle 15kg shabu to Indonesia.

Based on the BNN Renstra 2015-2019, the prevalence of drug abuse reaches 2.2 percent of Indonesia's population or about 4 million people in Indonesia are trapped in a drug circle where 1.5 million people try to use, 1.5 million people regularly wear, and 987 thousand people addicted . According to the BNN document in 2014 as much as 27.32% of drug users are students and the rest are workers and unemployed, which means that drugs can be easily obtained by young people between 12-15 years of junior high school, high school, up to college, matters Will interfere with student achievement that consumes the drug. In addition to harming yourself drugs are also bad for the community as a case of a car driver who killed 9 people in Tugu Tani Central Jakarta area in 2012 ago. As a result of this drug selling, generally resulted in the emergence of organic mental disorders and promiscuity that in turn damage the future of the nation.

The junior high is the time when a child seeks out who they are. Began actively seeking friends, expanding relationships, and approaching the opposite sex. This is also where the child is easy to be persuaded so that it is easy to follow the words of others. This period is a very risky time because based on BNN documents, it is said that as many as 30.12% of people use drugs because they are invited by close friends. In addition to pay attention to the environment of children should be informed about the dangers of drugs early on so that children will be more vigilant because the impact is terrible.

During this time BNN socialize using ads such as radio, social media, newspapers, billboards, and conventionally by face-to-face like lectures and using presentation slides. However, it is considered less effective because the child will quickly get bored so ignore the information submitted.

Based on these problems it can be concluded that the need for a media that can help BNN in disseminating the types and dangers of drugs to children in an interesting way. According to the

results of previous studies that discuss the learning Mendia herbal medicine states that the media are suitable to serve as lessons for children ranging from the age of 11 years is to use the game [1].

The study was conducted in SMP 13 Bandung by distributing questionnaires to 100 students and female students. The results of questionnaires given to 100 students and girls, obtained 73% using Android and 27% using IOS. According to research conducted previously as much as 41.02% of android users in 2014. This proves that teens in Indonesia has considerable attention in the use of Android smartphones [1].

Based on the results of the research, the final topic of "Adventure Game Development as an Alternative Socialization of Drugs in BNN Bandung City", in the hope that this application can help BNN in providing knowledge about the dangers and types of drugs for children.

The intent and purpose of this study is to build an application to introduce this type of adventure games and the dangers of drugs on the Android platform which can help the socialization process to make it more fun. While the objectives to be achieved in this thesis research are:

1. Helping BNN in socializing the types and dangers of drugs in childrens
2. Providing an alternative medium of socialization in the form of *a game* that can provide knowledge about the species, and the dangers of drugs through how to play, images, and animation.

2. RESEARCH CONTENTS

2.1 Android

Android is the operating system for mobile phones based on Linux. Android provides an open platform for developers to create their own applications and be used by a wide variety of mobile devices. Initially, Google Inc. Buy Android Inc., a newcomer who makes software for mobile phones. Then to develop Android, formed the Open Handset Alliance, a consortium of 24 companies *hardware, software*, and telecommunications, including Google, HTC, Intel, Motorola, Qualcomm, T-Mobile, and Nvidia. At the inaugural release of Android, November 5, 2007, Android with the Open Handset Alliance stated it supports the development of open standards on mobile devices. On the other hand, Google released the android codes under the Apache license. In this world there are two types *of distributors* operating system Andoird. The first gets full support from Google or Google Mail Services (GMS) and the two are completely free of distribution without direct support of Google or otherwise known as Open Handset Distribution (OHD) [10].

2.2 Construct 2

Construct 2 is a 2D HTML game engine developed by Scirra Ltd., a startup company headquartered in London. Game engine is developed with the concept begavior & event attachment so that logic in the game can be built without having to type a single line of coding too! Simply drag-and-drop it. This method of course will be easy for prospective game developers who have no programming background.

Construct was first released under the name Construct Classic in 2007. In 2011, Scirra released the latest version of the Construct Construct 2 (also known as C2). Construct has been downloaded approximately 2 million times and web view reach 14 million times. In early 2015, the Scirra team announced it would launch Construct 3 which is claimed to revolutionize the editors used and supports more operating systems such as Mac and Linux. In spite of this, Construct 3 will still have a complete battle over all projects constructed by Construct 2.

Since the beginning of Construct 2 was designed to maximize the process of game development without the need to do scripting alias ngoding. The goal is to speed up the process of making games and help the non-programmers to create their dream game. The logic setting in Construct 2 is presented in the Event Sheet which contains various basic methods and basic functions of building a game. The end result of the game built by Construct 2 is an HTML 5 based game that runs in various browsers such as Chrome, Firefox, Internet Explorer, Safari, and Opera. [13]

2.3 Intel XDK

Intel XDK is the development kit made by Intel to create native apps for mobile devices using web technologies like HTML5 , CSS and JavaScript . The web application is compiled using the platform of Cordova in the online server to create hybrid applications are cross-platform. The Intel XDK application itself is a cross-platform application available for Windows, Linux and OSX operating systems. With technology like this, developers can create one application that can run on multiple mobile platforms using just one codebase.

With Intel XDK, developers can compile their applications online so there is no need to install various tools such as Cordova, SDK and so on on their own computers. And more interestingly, Intel XDK not only provide online compiling, but also all the needs of the development phase such as coding, testing, debugging, to publishing to online mobile stores like the App Store and Play Store.Intel XDK immerse code editor Brackets along with its advantages such as Code hinting and code completion so as to facilitate the process of writing code. Developers can also test applications that are being built using the emulator so there is no need for a long process to be able to see the small progres.

Developers also can perform testing device with the help of Intel's mobile application App Preview so that developers do not need to install the application on the device to perform testing.Intel

XDK also provides a variety of application templates and games with a variety of application frameworks such as Ionic, AppFramework and gaming frameworks like Cocos2d-JS , EaselJS , Phaser , Pixi, BabylonJS and Three.js . And for beginner developers who want to learn to create applications or mobile games, Intel XDK has provided many sample and demo applications that can be directly observed program code and also the results.

Until now, Intel XDK supports several popular mobile platforms such as Android , iOS , Windows 8 , Windows Phone 8.1, Windows 10, as well as exports to the Chrome App package. [13]

2.4 Adobe Illustrator

Adobe Illustrator is an application to process and edit the design or vector images, where the application is developed and marketed by Adobe Systems . Adobe Illustrator is available on the computer, which means it can not be used on other devices like mobile phones, tablets, and other devices.

Adobe Illustrator was first developed for Apple Macintosh computers in December 1986 and released in January 1987. At that time Adobe Illustrator is a companion product of Adobe Photoshop. Unlike Adobe Photoshop, Adobe Photoshop is a raster or bitmap image processing application. [14]

2.5 Black-Box Testing

In the software development life cycle (Systems Development Life Cycle: GDLC) one of the processes that must be done is the testing process (testing). Software testing is a technique used to test whether a software generated meets the needs of a user's business process or not. According to Pressman, testing is the process of executing a program to find errors before use by end users (end-user) [15].

One method of software testing is a Black-Box Testing. Black-Box Testing is a method used to find errors and demonstrating the application's functional when operated, whether diterma correctly input and output has been as expected.

The focus of testing using the Black-Box is on testing the functionality and application generated output. Black-box testing is designed to uncover errors in the functional requirements by ignoring the internal mechanisms or components of the emergency program.

Software testing has several levels, for testing using the method of Black Boxes, there are six levels, namely Integration, Functional, System, Acceptance, Beta, and Regression. One of the Black-box testing can be done by an independent examiner is Functional testing. Basis of functional testing test is the specification of software components to be tested. Functional testing ensures that all requirements have been met. Thus the functions are tasks that are designed to be implemented. Functional testing concentrates on the outcome of the process, not how the process occurs [15].

2.6 Hardware Requirements

Tabel 1. Hardware Requirements Analysis

Processor	***Memory***	***Hardisk***	***Hardware***
3.5 Ghz	4GB	500 GB	VGA 1 GB

Tabel 2. Hardware user needs Analysis

Processor	***Memory***	***Storage***	***Operationg System***
Processor with speed 1.2 Ghz	Memory capacity is 1 GB	SD card capacity is 1 GB	Operating system used is Android Kitkat (4.4)

2.7 Software Requirement

Tabel 3. Software Requirements Analysis

Operating System	Windows 10 Pro 32-bit.
Software yang digunakan	Adobe Illustrator CC 2014
	Construct 2
	Intel XDK

Tabel 4. Analysis of Software Requirements

Device	Android
Operating System	Kitkat (4.4)

2.8 Analysis Game That Will Be Built

Game Drug Fighter is a game that Adventure genre. This game is built by applying alternative media learning to present the material socialization of danger and types of drugs interactively and educatively with 2D graphical display (2 Dimensions). This game is divided into objects because it uses object-oriented programming. In-game implementation descriptions are as follows:

1. The game is played by the player touching the navigation buttons on the screen to move the character. This way as a substitute for keyboard functions on the computer.
2. Each stage has different difficulties and drug types.
3. The socialization material is described using popup information that will appear itself when the character touches the information board as well as the side effects if the character is exposed to the drug.
4. Game is playing while learning, because in the game presented information about the type and impact of drug use.

2.9 Material Analysis

Based on documents obtained from the National Narcotics Agency, the most widely used drugs in Bandung are marijuana (29.69%), Ecstasy (8.26%),

Shabu (7.14%), Cocaine (6.25%), Heroin (5.80%). So in the game Drug Fighter there are 5 stages of ecstasy, heroin, cocaine, shabu, and marijuana

The stages to be used are the most commonly used types of drugs and names that are easy to recognize and remember. Stage is sorted by the number of uses from the smallest to the largest. This shows that the more the number of drug use the more difficult it is to eradicate.

2.10 Storyline

Game Anti-Drugs Warrior is a game that adventure genre. This game tells the story of an exemplary junior student named Joe who saw his friend being persuaded to use drugs. Joe can not stay silent to see all that then he plans to save his friends. The journey to save his friends is not easy, Joe is confronted by the men of the drug dealer and to defeat the enemy and save his friends, Joe must know what kind of drugs are used and the effects that arise when used.

2.11 Gameplay

In this game the player plays a role as Joe is the main character in the game Drug Fighter who in the course of rescuing his friends from the influence of drugs.

Before entering the game, players can choose 4 menus namely Start, Galery, Settings, and Exit. If the player chooses the gallery menu it will display a menu in which there are introductions as well as drug images related to the game. If the player chooses the settings menu then the settings menu will be displayed where the player can set the sound. If the player chooses the start menu, the system will display a selection of stages that can be selected by the player. Each stage will open when the player can complete the previous stage. Game Drug Fighter has 5 stages of ecstasy, heroin, cocaine, shabu, and marijuana.

During the course of the player will be confronted by many obstacles and puzzles to be able to complete the stage other than that players will also get information about the type to the dangers of drugs. The player can move the left or right character by using the left navigation key, then jump and attack using the buttons on the right.

The game will finish when the player has reached the end of the stage and has defeated all enemies. At the end of the game the player will get a score based on the number of books collected. Scores obtained in the form of numbers and the number of stars when the score is high then the number of stars earned is 3 stars. The game will end when the character's blood reaches 0 or the character falls into the abyss. Players will be given a choice when the defeat is back to the main menu or repeat the game from the beginning.

There are 4 main stages in this game are:

1. Introduction and explanation
2. Passing obstacles
3. Defeat the enemy
4. Rating *(Scoring)*

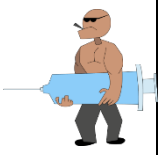
2.12 Character Analysis

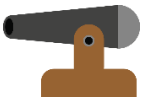
In this section the characters in the Drug Fighter game are described.

Tabel 5. Characters will be built

No	Nama	Gambar	Keterangan
1	Joe		It is the main character that will be played by the player. Joe is a junior high school.

Tabel 6. Character enemies that will be built

No	Jenis	Gambar	Keterangan
1.	Enemy 1		This type of enemy can only run to the left and right without attacking.
2.	Enemy 2		This type of enemy can throw drugs to the characters.
3.	Enemy 3		This type of enemy has a large body and carrying weapons in the form of injections.
4.	Enemy 4		This type of enemy carries a weapon that will fire a drug.

5.	Enemy 5		This type of enemy carries a weapon of cigarettes to be cast.
6.	Cannon		This tool can fire the ecstasy quickly.

2.13 Usecase Diagram

Use case diagrams are diagrams to describe the relationships that occur between actors with activities contained in the system. The use case modeling objectives include defining the functional and operational requirements of the system by defining the system usage scenarios to be built. In general, the interaction between the players with the game application is described in the *Use Case* diagram in Figure 1

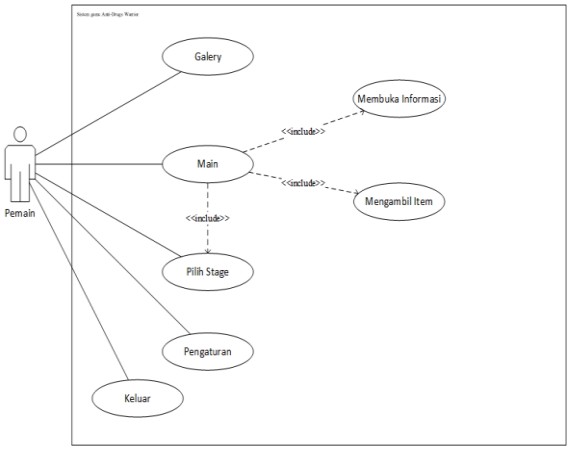


Figure 1. Usecase Diagram

2.14 Class Diagram

Class diagrams or class diagrams describe the structure of the system in terms of defining the classes that will be created to build the system. Classes have what are called attributes and methods or operations.

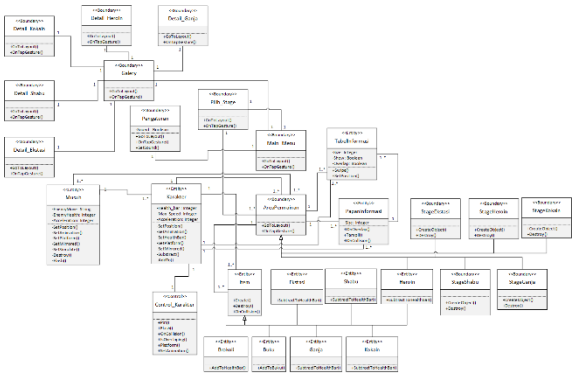


Figure 2. Class Diagram

2.15 Menu Structure Design

The design of the menu structure is a description of the interconnected menus in system development.

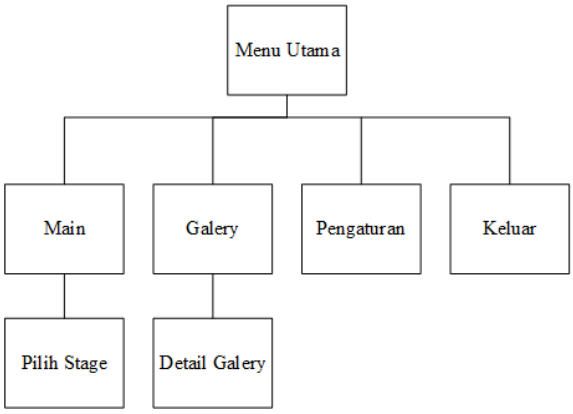


Figure 3. Perancangan Struktur Menu

2.16 Interface Implementation

The following is the result of the interface implementation of the design that has been made before:

2.16.1 Main Menu Implementation



Figure 4. Main Menu

2.16.2 Implementation Select Stage

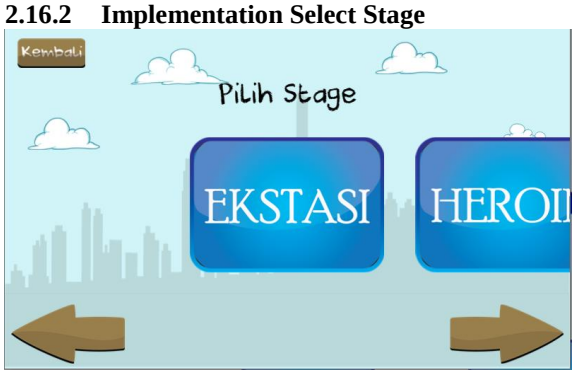


Figure 5. Stage Select

2.16.3 Game Area Implementation

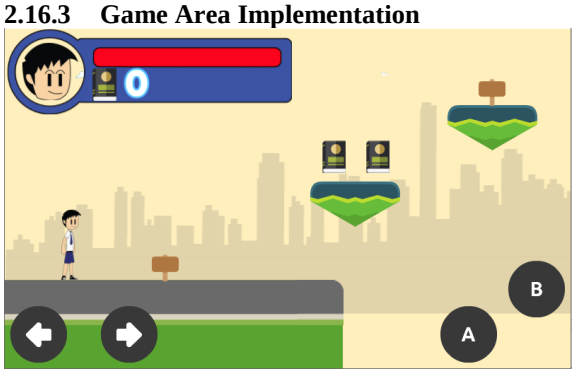


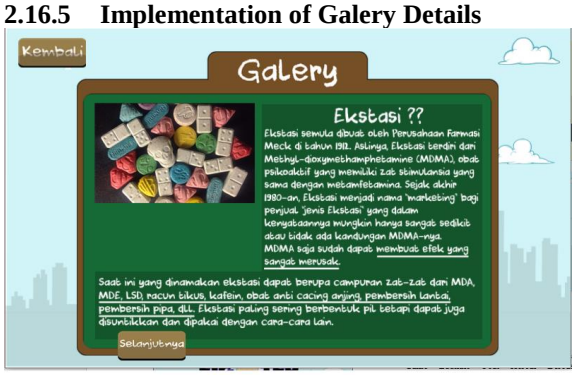
Figure 6. Game Area

2.16.4 Implementation Galery



Figure 7. Gallery

2.16.5 Implementation of Galery Details



Gambar 8. Details Gallery

2.16.6 Implementation Settings



Figure 9. Setting

2.17 System Testing

System testing is the most important thing to do to find flaws or errors in the software being tested. This test is intended to find software that has been made meet the criteria in accordance with the purpose of software design.

2.17.1 Alpha Testing

Testing is done on the application to ensure that the application can run correctly in accordance with the expected needs and objectives. Alpha testing focuses on the functional requirements of the software.

Tabel 7. Pengujian Karakter

Data Input	Expected Results	Observation	Conclusion
Pressing the navigation key to the left.	The character moves to the left.	The system moves the character to the left.	[√] Succeeded []Not successful
Pressing the navigation key to the right.	The character moves to the right.	The system moves the character to the right.	[√]Succeeded []Not successful
Pressing the "A"	Character jumps.	The system moves characters to jump.	[√]Succeeded []Not successful l
Pressing the "B"	The characters attack the enemy.	System moves characters to attack.	[√]Succeeded []Not successful

Tabel 8. Pengujian Item

Data Input	Expected Results	Observation	Conclusion
Characters take books	Score increases 1.	The system moves the character to the left.	[√]Succeeded []Not successful
Characters take Broccoli	HealthBar adds 25.	The system moves the character to the right.	[√]Succeeded []Not successful
Characters touch the	Displays information table	The system moves	[√]Succeeded

informati on boards informasi		characters to jump.	[]Not successful
The player touches the "Next" button on the informati on table	Displays table informati on next section.	The system invokes the next section of the infromati on table.	[√]Succeed ed []Not successful
The player touches the "Finish" button on the informati on table	Informati on table disappear ed	The system removes the informati on table.	[√]Succeed ed []Not successful
The player is exposed to ecstasy	Character movemen ts slowed for 2 seconds, Healthbar reduced 25 points	The system reduces the character' s moving speed for 2 seconds	[√]Succeed ed []Not successful

2.17.2 Beta Testing

Beta testing is an objective test, which is tested directly to the user by using a questionnaire about the satisfaction of the users of the application that has been built. Using the slovin formula (Steph Ellen) with the following Principles and Methods of Research references.

$$n = \frac{N}{(1+Ne^2)} \quad (1)$$

Keterangan :
n = Number of samples required
N = Population
e = Tolerance Error

With so testing done to 30 respondents with minimum age of 12 years.
To find the interval of each answer is used Likert scale. The formula is:

$$I = \frac{\sum s}{Jumlah\ Responden} \quad (2)$$

Information :
I = Value of the Sought Interval
$\sum s$ = The number of scores obtained from each answer option is multiplied by the weight that has been set according to the answer.

With so testing done to 30 respondents with minimum age of 12 years.

3. CLOSING

3.1. Conclusion

Based on the results of implementation and testing of Drug Fighter socialization game, it can be drawn a conclusion as follows:

1. Drug Fighter games can help children recognize the types and dangers of drugs.
2. Drug Fighter games can help children recognize the types and dangers of drugs..

3.2. Saran

Game Fighter built *Drug* socialization is still a lot of weakness. For that, below are some suggestions that can be given to support the development of this game:

1. Game Drug Fighter this game should be added material about drugs to be more complete.
2. This Game Drug Fighter should be added to this quiz to test the level of understanding of the child about drugs in each stage.
3. Game Drug Fighter should be added animation on every action, to increase user interest in this game

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