



**Faculty of Applied and Creative Arts**

**Visual Enjoyment Factor in Playability: Case Study of Real Time  
Strategy Games**

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Visual Enjoyment Factor in Artistic Playability: Case Study Real Time  
Strategy Games

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## DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Malaysia Sarawak. Except where due acknowledgements have been made, the work is that of the author alone. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.



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## ABSTRACT

Each game has its own unique feature, which attracts players by continually playing the game on a daily basis. The game appeal also concerns interface attributes, game mechanics, and interfaces designed to stimulate excitement in playing the game. However, there is little discussion about the perceived visual enjoyment factor in artistic playability, especially among youth based on the Real-Time Strategy (RTS) game to support this statement. This research was carried out using the System Usability Scale (SUS) (Brooke, 1986), interviews and questionnaires. The use of SUS is trusted by its reliability and has become an industry standard with numerous references. Based on the findings, the results show that the players are pleased with the mechanics of the game; however, the players are relatively enthusiastic about the competitive challenge of finishing the game and achieving their goal. The visual is also not the driving factor for the player to keep playing the game, but the desire to complete the competitive challenge to feel satisfied until the game is over. The game enjoyment factor is more critical than usability, because it defines playability in the DOTA 2 game. Other than that, DOTA 2 is more extensive and significantly dependent on CTPM (Critical Thoughts Per-Minutes) and communication within the team, because critical thinking is very much needed to perceive enjoyment, but the depth, breadth and speed needed to apply the game to make a difference. If the players play their role while playing the game, they will also develop a particular style of leadership that will lead the team to victory and reduce the emotions while playing the game.

**Keywords:** Real-Time Strategy (RTS), video game, CTPM (Critical Thoughts Per-Minutes), Defence of the Ancients 2 (DOTA 2), System Usability Scale (SUS).

## ***Faktor Kesonokan Visual yang Dirasakan Melalui Elemen Artistik: Dalam Kes Kajian Permainan Strategi Masa Nyata***

### ***ABSTRAK***

*Setiap permainan mempunyai ciri tersendiri, yang menarik pemain dengan terus bermain permainan setiap hari. Permainan sedemikian mempunyai daya tarikan atribut antara muka, mekanik permainan, dan antara muka yang dihasilkan untuk merangsang kegembiraan dalam bermain permainan. Walau bagaimanapun, terdapat sedikit perbincangan mengenai faktor kenikmatan visual yang dirasakan dalam permainan artistik, terutamanya dalam kalangan belia berdasarkan permainan Strategi Masa Nyata (SMN) untuk menyokong pernyataan ini. Penyelidikan ini dilakukan dengan menggunakan System Usability Scale (SUS) (Brooke, 1986), temu bual dan soal selidik. Penggunaan SUS dipercayai oleh ketetapan dan telah menjadi rujukan ramai dalam standard industri. Berdasarkan hasil kajian, menunjukkan bahawa para pemain berpuas hati dengan mekanisme permainan; namun, para pemain agak bersemangat dengan cabaran yang kompetitif untuk menamatkan permainan dan mencapai matlamat mereka. Visual juga bukan faktor utama mendorong pemain untuk terus bermain permainan, tetapi keinginan untuk menyelesaikan cabaran yang kompetitif untuk berpuas hati sehingga permainan selesai. Faktor keseronokan permainan lebih kritikal daripada cara bermain, kerana ia menentukan kemampuan bermain dalam permainan DOTA 2. Selain itu, DOTA 2 lebih luas dan sangat bergantung pada PKPM (Perasaan Kritikal Per-Minit) dan komunikasi dalam pasukan, kerana pemikiran kritis sangat diperlukan bagi menghasikan perasaan seronok dalam permainan tetapi kedalaman, keluasan, dan kecepatan turut diperlukan sekiranya hendak merasakan perbezaan keadaan dalam permainan. Sekiranya pemain memainkan peranan mereka semasa bermain permainan, mereka juga akan*

*mengembangkan gaya kepemimpinan tertentu yang akan memimpin pasukan menuju kemenangan dan mengurangi emosi ketika bermain permainan.*

**Kata kunci:** *Permainan Strategi Masa Nyata (SMN), permainan video, PKPM (Perasaan Kritis Per-Minit), Defence of the Ancients 2 (DOTA 2) System Usability Scale (SUS).*



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## LIST OF ABBREVIATIONS

AI	Artificial Intelligence
CTPM	Critical Thinking Per-Minutes
DOTA 2	Defense of the Ancients 2
F2P	Free-to-play
HUD	Head-up Display
MMR	Match Making Rating
RTS	Real-Time Strategy
SUS	System Usability Scale
TBS	Turn-Based Strategy
TA	Thematic Analysis
UX	User Experience
XP	Experience
2D	Two Dimensional
3D	Three Dimensional

# CHAPTER 1

## INTRODUCTION

### 1.1 Overview

Nowadays, we have reached the era of technology with millions of gadgets and platforms to play video games. Most people, since 1996, where the computer game industry has been expanding from 20 to 32 billion video game software had been sold worldwide in 2008. One of the most popular video game genres being played is a real-time strategy (RTS) game. Currently, *Defence of the Ancients II* (DOTA 2) is the most top game on Steam played by gamers worldwide. It can be played offline or online using the steam platform developed by Valve Corporation. This RTS game genre has initially released on July 9, 2013, on Steam. After the video game release, it has 10 million subscribers worldwide, bringing around 1 billion in revenue for parent company Blizzard Entertainment. Therefore, game industries are overgrowing and generate more involvement in increasing industry economic than the motion picture and music industries (Thompson et al., 2016). Due to the high demand in the gaming industry, it is necessary to put more research and development resources to enhance game playability. This game demand allowed the developer to produce realistic graphics, fatty levels, and complex artificial intelligence (AI), leading to the game even closer to reality (Machado et al., 2011; Smith et al., 2011).

This research discovers the enjoyment and visual factor in artistic playability in the RTS game genre. Other than that, this research will answer the fundamental research questions from the objectives. This research also can be used as a reference for other researchers in the future. The education side can apply the game to learning purpose to



expose the student about the gaming industry. This research is useful for the local industry to create a similar match or include the visual suggestion to improve the regional competition. Thus, the game developers can market the game internationally in improving economic growth.

## 1.2 Background of Research

Real-time strategy (RTS) game is a compelling game and is an online and offline game that is widespread and played worldwide. In this game, it includes competition, collaboration, group, and communication. All the game components came to form a powerful influencer and transform their thinking (Aldrich, 2005). This game keeps players thinking of continuing to survive and fight against the foe.

RTS players can play in groups and can manage their team to achieve success. RTS games include pictures, texts, pictures, music, symbols, and illustrations (Bruce, 2003); each element can help players play more exciting and organised. DOTA 2 is a real-time strategy (RTS) game concept created by Blizzard Entertainments in the mid-2000s. The RTS game concept can be identified as a single unit hero strategic battle between two minor groups of musicians; each team will try to put down the opponent's base. The musicians can control a single character or more in different units. Some examples of RTS games are *Defense of the Ancients* (DOTA), *Defense of the Ancients II* (DOTA 2), *Warcraft III* and *League of Legends* (LOL). The first RTS game is *Warcraft III*, this game was create using the custom map from "Aeon of Strife" famed modder named Eul, and it was the first traditional mod gameplay introduced (Lockley, 2014). After making the map, Eul used these maps to recreate a new map call *Defence of the Ancients*. Now, the mod map becomes popular. Players usually called this game like DOTA 2 only since it has a

very long name. Nowadays, there are too many types of a game similar to the game in the market. In another view, there are few types of famous RTS games, which are *League of Legends* (LOL), *Defense of the Ancients 2* (DOTA 2), and *Heroes of Newerth* (HON) (Pantazis, 2012).

The researcher chooses RTS games because it is progressively turning a trend to the surrounding community, especially teenagers. Undoubtedly, RTS games are getting more attractive worldwide. Through this inquiry, the researcher hopes to identify visual elements that cause the local players to prefer to play RTS games other than others. This research's focal point is how the RTS game can attract and motivate the local participants to continue playing. This research also analyses how local players play in groups and independently examine the differences through both the game variety and the player's spot.

To better understand how local players accept the RTS game, the gameplay or a local player's experience is significant for changing the player's mood and influencing players' behaviour. RTS games could generate an emotional shock and bring terrible emotions towards the player. Besides that, emotion is hard to expect, and it depends on the person how to interpret the feeling (Tyack et al., 2016).

Nowadays, research information or data related to the visual enjoyment factor in artistic playability for RTS game among local teenagers are minimal. In Malaysia, especially still lacking support for this kind of research. The enjoyment factor in artistic playability for RTS games among teenagers refers to primary data carried out by outside observers and interviews with people connected to RTS games. Additionally, secondary data obtained from books, newspaper clippings, and journals supports this research.

This research also involves university libraries and government agencies. The researcher used the reading materials at Universiti Malaysia Sarawak (UNIMAS) 's library is to search for books or previous studies related to RTS games that contain a piece of information related to the enjoyment factor in RTS game. Meanwhile, the government agency referring to this study is from the Malaysian Communications and Multimedia Commission (MCMC) in obtaining data regarding the frequency of game use online according to the stated age range. The researcher will use the data collection of primary and secondary materials to operate at the attention level. This process will further examine the game RTS, which is becoming a significant attraction nowadays in teenage life.

### **1.3 Research Limitations**

Research limitation is a design or methodology that affected or influenced the research's interpretation. The limitations of this study, such as how the researcher initially chose to design the research study or the technique used to determine the internal and external validity of the unanticipated challenge of the course, apply to the practice and usefulness of these research findings. These are the constraints faced the researcher during the conduct of this study;

- i. This research case study only focuses on the RTS game.
- ii. The researcher has distributed the questionnaire and interview in certain areas in Kota Samarahan, Sarawak only. Therefore, data related to this inquiry are very restricted.
- iii. This research only focuses on active youths playing RTS games ranging from 14-30 years old only. Hence, the feedback on this game is limited for researchers.

- iv. Studies related to this RTS game have not been explored or studied by accepting the local players' RTS game.
- v. This research was only conducted by having the interview and using questionnaires to collect data from the youth participants.
- vi. The researcher conducted this research without any sponsored.
- vii. Time-consuming is the most concern to finish this research.
- viii. Participants of this research are limited based on the System Usability Scale requirements.
- ix. The sample size was relatively small: 17, 10 participants for the questionnaire, and 7 participants for the interview. A larger sample will potentially increase the durability of the analysis.
- x. Qualitative research does not allow the measurement of the examined problems.
- xi. This research did not get any funding from any organisation.

#### **1.4 Problem Statements**

RTS game genre has been increasing steadily over the past few years, contrasting to other gaming industry game genres. Recently research only focus on games as a leisure activity has shifted, and games also are seen as tools to help with learning, skill acquisition and behaviour change (Sawyer & Smith, 2008).

Moreover, this is indeed an essential body of work to consider. However, the researcher argues that to understand the impact of video games on adolescents' development, a more balanced perspective is needed, considering the possible adverse effects and the enjoyment of playing these games. Considering these potentials enjoyment factors is essential because these games' nature has changed dramatically in the last decade,

becoming increasingly complex, diverse, realistic and social (Ferguson & Olson, 2013). Indeed the primary goal of playing video games is enjoyment (Pagulayan et al., 2002; Nacke & Drachen, 2011).

Throughout this research, there is no post or data used to get the players familiarised with the game among local gamers in the research area. Third-parties' source, has implemented a wealth of understanding, explanation, and evidence for the game. Nonetheless, some information might not be amended and could be inaccurate, resulted in excluded false publications or misunderstandings, lead to disorientation to those who want to study more about the game based on local content. Although the issue raised, the local DOTA 2 players had been precious to produce this research because of their information.

The study's main subject is the RTS game *Defence of the Ancients 2* (DOTA 2). This research aims to obtain visual enjoyment factors among gamers in the RTS game's artistic playability perspective and identify its visual interest. This research also aims to provide a theoretical overview of the visual enjoyment factors among local gamers for RTS genre games. The purpose of this research is to explore both visual enjoyment and artistic playability factors of RTS games and investigate the attraction of enhancing visual enjoyment in the RTS game using a local gamer's perspective. The researcher also examines the relationships between perceived visual enjoyment, intention to play, and gamers' actual behaviour. It also provides an idea for the game industry, especially in Malaysia, to explore RTS games based on local interest.

## **1.5 Research Questions**

Among the queries in this research field:

- i. How is the playability factor able to attract the local player to play the RTS genre game?
- ii. Why does the experience of the player, visual game, and emotion affect the enjoyment of the player while playing the genre game of RTS?
- iii. What are the relationship between perceived visual enjoyment and artistic playability factors with RTS local game development.

## **1.6 Research Objectives**

The objectives of this research are:

- 1) To investigate the playability factors that influence players to play RTS games.
- 2) To analyse whether visual factors affect the playability of RTS games among local gamers.
- 3) To evaluate the relationship between perceived visual enjoyment and artistic playability factors with RTS local game development.

## **1.7 Hypothesis**

The Hypothesis of this research is:

H1. RTS genre game that maintains the visual design and gameplay on the game design will attract the players to keep playing for an extended period then the games that did not maintain the game design's playability element.

H2. Experience players are already familiar with the RTS game's visual game, and they understand that they are sometimes not affected than players who just started playing the RTS genre game.

### **1.8 Research Scope and Significant**

This research related to visual enjoyment in the game has not been distributed in that research area before. It means there is no previous data about the enjoyment factor in RTS game among teens that researcher can refer. This research is valuable because this RTS game genre can multiply and create a better space for teens to engage in activities, especially in this modern era. In addition, to further fulfil the requirements of the local player and improve the game industry in the future.

This research might give the local game developers some inspiration to develop a game based on local interest. In terms of education, this research will give more in-depth views by investigating the relationship between local video game players and visual enjoyment factor in the context of academic work.

Recent research on the visual enjoyment factor in artistic playability for RTS games among teenagers or youth in Malaysia is minimal. Thus, this survey will help bridge the knowledge gaps on the topic. It likewise functions as a tool for identifying potential RTS games through this work.

This study is being distributed to a few local players playing DOTA 2. The participants were chosen because of their experience of playing the game DOTA 2. They were then categorised as amateurs (Beginner) and experienced (Advanced) players of the DOTA 2 game. Additionally, this research based on an analysis of the visual enjoyment with a single RTS game. This kind of research has not formally investigated local gamers,

especially in Kota Samarahan. Overall participants for this research consist of ( $n=17$ ). Participants for online questionnaire is ( $n=10$ ) people, which are female (18.2%) and male (81.8%), age between 18-22 years old (45.5%) and 23-27 (54.5%). For the interview, it consists of ( $n=7$ ) people. The configuration of the participants is to perceive the visual enjoyment factor in the artistic playability of the *Defence of the Ancients 2* (DOTA 2).

This research was conducted by the researcher in Kota Samarahan, Sarawak, Malaysia only. All the participants are assigned to fill in the online questionnaire to gather the data—the questionnaire created from the System Usability Scale (SUS) requirement and artistic playability elements. In order to reach the research objectives, researchers have restructured the question to gather valid data. To answer the questionnaire, the participants need to play the game to answer the question correctly. Studies related to this RTS game over the local player (age 14-30) Kota Samarahan have not been studied in the context of visual enjoyment factor in artistic playability yet.

Research on RTS game acceptance among teens provides more detailed information to local game developers to develop a game based on their game demand. The researcher hopes that the future design of the gaming industry can be enhanced by this research information or data. Games like this can multiply to create a better space for teens than to engage in activities that are not of interest to them. This research also can help local game developers an idea to create a game based on local interest. In terms of education, this research will give more in-depth views about the relationship between local video game players and visual enjoyment factors in academic study.