Computer Games: A New Medium for Traditional Asian Art

Conrado R. Ruiz, Jr.  
College of Computer Studies  
De La Salle University  
Manila, Philippines  
e-mail: cons.ruizjr@delasalle.ph

Sujitra Chodnok  
Div. of Computer & Elec. Eng’r  
Ewha Womens University  
Seoul, South Korea  
e-mail: sujitra42@hotmail.com

Nor Hidayu Salimi  
Malaysian Inst. of Information Technology  
Univeristi Kuala Lumpur  
Kuala Lumpur, Malaysia  
e-mail: nhidayu@miit.unikl.edu.my

Pham Trung Ha  
VTC Game  
Hanoi, Vietnam  
e-mail: ha.pham@vtc.vn

Abstract

Computer games are the result of the convergence of art and technology. In this paper, we explore the possibility using computer games as a medium for promoting Asian culture and art, and therefore asserting that it should be considered as an art form itself. To establish why computer games can be considered art, we take into account the major theories of art based on historical, institutional, aesthetic, representational and expressive definitions. We also present the computer games that we have developed and show how these can be used to exhibit the culture and art of a country. The first game is Tuk-tuk (auto rickshaw) based on Thailand’s popular mode of transportation. It is essentially a taxi simulation game where the player has to pick up passengers and bring them to their desired location. In the game the traditional architecture of Bangkok’s structures is shown, passengers wear Thai traditional costumes and Thai music is played in the background. The second game is “O An Quan” (game of squares), a traditional board game played with stones in Vietnam. It is similar to Malaysia’s “Congkak” and the Philippines’ “Sungka”.

Keywords: Computer games, Digital art, Traditional art, Computer graphics and animation, Game content

1. Introduction

Computer games are now commonplace and is one of the more popular forms of entertainment. The pervasiveness of the computers in homes coupled with the increased processing power of video cards and improved multimedia capability has led to computer games that are visually appealing and able to capture the imagination of its players.

Computer games are said to overtake the film and music industry in terms of growth in the coming years [2]. Catering to a vast audience and different age groups, the market for computer is steadily increasing. However, despite the cultural prominence of computer games and technology-based art, philosophical aesthetics has completely ignored the area [13].

Computer games combine elements from narrative film, music and sports. Ironically, its major resistance comes from the scholars in film and animation, which is arguably its closest art form. Some critics believe that it greatly differs from film because it allows interactivity. Ebert [7] argues that, “Video games by nature require player choices, which is the opposite strategy of serious film and literature, which requires authorial control.” The proponents believe that games should not be easily dismissed because of this presumption. After all, the entire recurrent problem at the heart of modernism is how to make the audience involved in the art work. Collingwood [5] used the term “concreative” to describe art this type of art, which is more collaborative.

It is difficult to find one encompassing definition of art, however if we simply consider art as anything that can creatively express thought and feelings to an audience, then computer games should be considered a plausible candidate. Conservative scholars may find it difficult to see computers games
as art, but this is also true when movies were first appeared or when any other art form was first introduced.

Even if we do not agree that computer games in its entirety are art, there is no question that the elements that make up modern computer games are art. Most computers games have 2D or 3D pictures, music and animations. All of which taken separately are unquestionably considered as art forms. Therefore, our premise can still hold true, that computer games can used a medium of presenting the culture and art of a country by contemporary means.

2. Games and Art

2.1. Evolution of Computer and Video Games

Computers were first utilized for military and scientific applications. Since most the intended output was merely numerical in nature, there was no pressing need for a graphical means of producing output. But eventually technological advancements gave computers graphics and sound capabilities allowing it to become a new medium of emotional communication art.

![Computer games through the years. From top-left to bottom right: Atari’s Pong (1972), Nintendo’s Super Mario (1985), id Software’s Doom (1993), and UbiSoft’s Prince of Persia (2010). Images and trademarks are owned and copyrighted by their respective owners.](image)

In the 1970’s most of the computers had monochrome screens and video games only had one color. In terms of sounds, computers only produced beeps with varying frequencies. One of the first well-known computer games during this time was Pong[17], a two-dimensional sports game which simulates table tennis. The player controls an in-game paddle by moving it vertically across the left side of the screen. The player can compete against either a computer controlled opponent or another player which controls a second paddle on the opposing side.

Computers in the 1980’s had the capability of producing color and simple melodies. Although the number of colors was very limited (16 or 256) and the music produced was equivalent to an electronic organ, game designers like S. Miyamoto have proven that good gameplay combined with creative
game elements can make a remarkable video game such as Super Mario Bros[11] that could even influence pop culture.

By the 1990’s the processing power of the CPU’s allowed game creators to add a new dimension to their work and players were introduced to 3D. One of the more popular games that made use of the technology was Doom[14], a first-person shooter, which even later found its way to other art form, film.

Current computer games can rival the graphics of digital animation films or even Hollywood movies. Soon it would be difficult to distinguish real life pictures with in-game graphics. A good example is the game Prince of Persia, which itself had its own evolution from its first version in 1989 to its current installment “The Forgotten Sands”, by Ubisoft[16]. It is considered as one of today’s leaders in terms of actual game aesthetics taking advantage of the advance features and capabilities of high-end video cards. But not only has the graphical capabilities of computers progressed but so has its ability to produce sound. Games nowadays can take advantage of high definition 3D sound capabilities found in standard sound cards. Soon the types of games we can create and the realism they exhibit will only be limited by the imagination of its creators.

2.2. Theories of Art

Clearly current technological advancements have made the multimedia capabilities of computers a viable candidate as a medium for art. But even in the 1984, Crawford [6] already considered computer games as art and published the book, “The Art of Computer Game Design”. He presented his own pedestrian definition of art that was also close to the expressive theory’s definition. He stated that art was something that could evoke emotion through fantasy, which to this day can be said of most computer games.

In this section, we explore other of major theories of art to support our argument that computer games can be considered as a modern art form. Most computer games follow a detailed storyline which makes it closely related to the narrative forms of art such as film. Although the player may have choices, most of the time the over-all story doesn’t change or it will still have predefined outcomes. As such any historical theory of art that accepts narrative films as an art form would have see computer games as a plausible candidate.

Computer animated films are generally considered as art in terms of its aesthetic qualities. But the traditional aesthetic considerations of the 3D artist making these films, such as the development of the environment, objects, movement, lighting and visual textures, are also considered by the game designer. The aesthetic experience of the player is very important in most contemporary game, as such based on aesthetic theory of art, computer games exhibit characteristics of art.

Computer games is are already included in a numerous exhibits of modern art in museums. The games we have developed in particular have been presented in an exhibit of contemporary art at the Daegu Museum in Korea. Other museums such the San Francisco Museum that hosted a symposium entitled, “ArtCade: Exploring the Relationship between Video Games and Art”, has shown the artworks of old games [10]. Not only do museums acknowledge art in games, but so does numerous universities that have courses on the graphic aspects of games, like MIT, NYU and Carnegie Mellon. Thus making games as an art form based on institutional grounds.

The representational theories of art dispute sports are an art form, because it fails in one criterion. Sports can be the subject of art, but art cannot be the subject of sports[3]. For computer games, this is not the case as such making it a viable candidate than even aesthetic sports like gymnastics in terms of representation.

Computer games are a relatively new and it will take time for it to gain acceptance even by game developers as an art form. Nonetheless, at its current status it is still a medium which can be used to promote culture and the arts.

3. Our Games

In this section we present the computer games that we have developed and show how they can be a medium to exhibit the culture and art of a country.
The first game is Tuk-tuk based on Thailand’s popular mode of transportation. It is essentially a taxi game where the player has to pick up passengers and bring them to their desired location. The second game is “O An Quan” (game of squares), a traditional board game played with stones in Vietnam.

3.1. Tuk-tuk

The game is a 3D taxi simulation game of Tuk-tuk in the streets of Thailand (Figure 2). The player has to pick up passengers and bring them to their desired destination. Once he accomplishes this he receives money, based on the distance travelled. The main objective is to make as much money as you can, given the limited amount of time. The money is expressed in Baht, the currency used by Thailand.

Figure 2. Tuk-tuk screenshots

Scene: The game is set in a 3D world that is based on Thailand’s capital, Bangkok. Although it is not an exact representation of the capital, the artists have included some of the landmarks such as Wat Pragaw Royal’s Temple (Figure 1), Victoria Monument, Wat Poh Temple and Lumpinee Park. The proponents have also added some traditional Thai houses in the map.

Figure 3. Wat Pragaw Royal’s Temple
3D Models: The most important model for this game is the Tuk-tuk itself (Figure 4). The game was developed at the Korean Game Academy as such, the developers decided to make the driver a Korean boy, dressed in traditional Korean costume (Figure 5).

Figure 4. Tuk-tuk 3D Model

The non-playable characters that the player can interact with are the passengers, Thai boys and girls (Figure 6) and other drivers of Tuk-tuks.

Figure 5. Tuk-tuk Driver (Korean boy) 3D Model

The non-playable characters that the player can interact with are the passengers, Thai boys and girls (Figure 6) and other drivers of Tuk-tuks.

Figure 6. Passengers 3D Models (Thai boy/girl) and Tuk-tuk Driver

Music: The background music used in the game is based on traditional Thai music but is more upbeat and contemporary. The first background music is played at the start, at the main screen, the second during the game, and the last after the game ends during the credits.

Gameplay: You can use either the keyboard or USB gamepad with analog controls and force feedback to play. The keyboard and gamepad layout/functions are given in Figure 7.
Using the keyboard, to make the Tuk-tuk accelerate the player has to press the up arrow key and the down arrow keys to stop. The arrow keys are also used to turn left or right. The X key is used to change the gear to reverse and vice-versa. To exit the game the player uses the ESC key.

Using the gamepad, the Tuk-tuk can be controlled using the analog stick or the gamepad. The left analog stick it used for maneuvering and the right analog stick is used for changing from drive or reverse. The X button is used for acceleration and the O button for stopping the vehicle.

The main objective is to find the passengers, indicated by a large exclamation mark on their heads and waving motion (see Figure 8). Once the Tuk-tuk is near the passenger the vehicle will automatically stop and the passenger will get in. A yellow arrow on top of the Tuk-tuk will then appear to indicate where the passenger wants to go. Once they reach the destination the passenger will go down and the appropriate amount of money will be earned.

To make the game more interesting the proponents have also added randomly appearing items/power-ups in the map. The corresponding action once an item has been acquired is presented in Table 1.
Table 1. Special Items that Appear in the Game.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>🎁</td>
<td>Gives additional 50 Baht</td>
</tr>
<tr>
<td>🎁</td>
<td>Gives additional 25 Baht</td>
</tr>
<tr>
<td>🎁</td>
<td>Gives additional 10 Baht</td>
</tr>
<tr>
<td>⚡</td>
<td>Increases Speed 2x</td>
</tr>
<tr>
<td>🕗</td>
<td>Increases the time limit by 3 secs</td>
</tr>
<tr>
<td>🎆</td>
<td>Mystery box (+/- 100 Baht)</td>
</tr>
</tbody>
</table>

3.2 O An Quan

“O An Quan” (game of squares) is a traditional board game played with stones in Vietnam. It is similar to Malaysia’s “Congkak” and the Philippines’ “Sungka”.

Board Design: The board consists of two big half-circles called Mandarin’s boxes and 10 small squares called "rice fields" or "fish ponds" (see Figure 9). Five pebbles are placed in each of the 10 small squares, thus each player has 25 pebbles on their side. One big stone is placed in each of the Mandarin boxes. The big stone is worth ten points and the small stones are worth 1 point.

Gameplay: To play the game you use the keyboard arrow keys to select a square and a direction. The keyboard layout/functions are given in Figure 10.

The first player takes up the contents of one square on his or her side of the board (but not a Mandarin's box) and distributes the pebbles one by one, starting with the next square in either direction.

After the last pebble is distributed, the player takes the contents of the following square and repeats the distribution process. But if the following square is one of the Mandarin's squares, the turn ends and passes to the other player. Player cannot skip turn.

If the last pebble falls into a square that precedes one empty square, the player wins all the contents of the square following the empty square and removes these pebbles from the board. If this square is followed by another empty square, the player wins the contents of the square after that, and so on. However, if there are two or more empty squares in a row, the player loses his or her turn.

Figure 9. O An Quan Board Game
When both Mandarin’s boxes are empty, the players count the points he/she has accumulated based on the pebbles they have collected. The player with the most points is the winner. If both players get an equal number of points, then the game is a tie.

![Keyboard Controls](image)

**Figure 10.** Keyboard Controls

4. Implementation and Design Issues

The computer games were created using the Irrlicht 1.2 Game Engine [8]. The Irrlicht Engine is an open source high performance real-time 3D engine written and usable in C++ and also available for .NET platforms. It is completely cross-platform, using Direct 3D, OpenGL and its own software renderer, and has all of the features which can be found in most commercial 3D engines. It is also a flexible graphics engine, and it is possible to develop a number of different applications using it. Some are examples include: complex 3D simulation applications, first and third person shooter games with indoor and/or outdoor scenes, real time strategy games, 2D games, virtual reality systems and the like.

For some of the input devices, Microsoft DirectX 9.0 was used directly, specifically DirectInput and DirectMedia. DirectX [12] is a set of development libraries for high performance games that allows software developers "direct access" to the low-level functions of PC peripherals. DirectX access is the hardware abstraction layer in Microsoft Windows.

To manage the sound elements in the game the proponents used the IrrKlang 1.1 Sound Engine. IrrKlang [9] is a high level 2D and 3D cross platform (Windows, Mac OS X, Linux) sound engine and audio library which plays WAV, MP3, OGG, MOD, XM, IT, S3M and more file formats, and is usable in C++ and all .NET languages (C#, VisualBasic.NET, etc). It has all the features known from low level audio libraries as well as lots of useful features like a sophisticated streaming engine, extendable audio reading, single and multithreading modes, 3d audio emulation for low end hardware, a plug-in system, multiple roll off models and more. All this can be accessed via an extremely simple API.

The proponents used 3D Studio Max to create the 3D models, Adobe Photoshop to create the textures and 2D Art and Adobe Premiere to edit the cinematic introductions.

5. Conclusion and Future Work

The proponents have presented some theories of art and related how these can be used to consider computer games as a modern day art form. Nonetheless, it is still not a widely accepted form by all scholars, artists and theorist. Even so, it is still a viable means of communicating art and culture by exploiting the use its elements.

In the first game, the traditional architecture of Bangkok’s structures is shown, passengers wear Thai traditional costumes and Thai music is played in the background. It presents the country’s traditional art in form that maybe more palatable to most people in this Digital Age.

The second game is “O An Quan” gives a new spin to an old game. In today’s modern and technological society, most children no longer play traditional games and spend most of the time playing computer games. But by adapting traditional games in video games, we can preserve some of the country’s heritage and culture while making it interesting for the next generation.

The proponents recommend that other game developers consider traditional games as a possible source of content for contemporary computer games, especially for casual games. Most games also make use of western lore and mythology, with the expectation of probably Japanese and Chinese
influences. However, other Asian countries also have a rich and diverse cultures and mythologies which could be good source of content for modern computer games.

6. Acknowledgment

This project was done under the Cultural Partnership Initiative (CPI) of the Ministry of Culture and Tourism (MCT) of Korea. Under the supervision of Dr. Chan Koh, Ms. Lim Jia, and Mr. Kim Changki at the Game Academy of Korea Game Development & Promotion Institute (KOGIA). We would also like to thank the coordinator of our program Ms. Chris Ahn.

7. References