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Master's Thesis
Academic Year 2014

ODATE GAME: Character Design and Modelling
for Japanese Modesty Culture Based Independent
Video Game

Graduate School of Media Design,
Keio University

Yan Zou

A Master's Thesis
submitted to Graduate School of Media Design, Keio University
in partial fulfillment of the requirements for the degree of
MASTER of Media Design

Yan Zou

Thesis Committee:

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Abstract of Master's Thesis of Academic Year 2014

ODATE GAME: Character Design and Modelling for Japanese Modesty Culture Based Independent Video Game

Category: Design

Summary

Game character design is an important part of game design. Game characters cannot be designed only according to the designer's experience or the players' preferences. They should be strongly associated to the game system and also the story. A good game character design is not only the reason for players to purchase the game but it also can improve players' entire game experience. This study presents an original independent video game: ODATE GAME, which is a touch based, guitar hero like music reaction video game and firstly transforms the Japanese modesty culture based social communication activities into a game concept. By reviewing the history and trends of video game character, this study discusses the principle of video game character design. It examines the most important facts affects character design and illustrates the actual designing and making process of the most proper character design for ODATE GAME.

Keywords:

Video Game, Character Design, Japanese Culture, 3D Modelling, Entertainment

Graduate School of Media Design, Keio University

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Chapter 1

Introduction

1.1. Background

Character design for video game was usually considered as less important than gameplay in the past, because the technology was not able to allow the characters to be made too complicated. Meanwhile, the scope of the game was also an important limitation. However, in nowadays which is a environment that both of the quantity and quality of video games have greatly progressed, the importance of character design has become higher and higher.

Benefit from the rapid evolving graphic technologies, the appearance of video game has changed greatly in the recent decades. The main character of a video game is used to be made with low resolution raster graphics[1] in the past. However, in nowadays player could even possibly confound the character made in high resolution 3D polygon graphics with real human beings. Also, due to the inventions and experimental adoptions of new art styles, such as cel shading[2] rendering and ink-painting rendering, character design of video game resulted in a wide diversification.

Meanwhile, in the perspective of business, Lynch (1998) highly considered the importance of character by reviewing the history of public art works [44]. This also has been recognised by video game makers in recent years. Successful character design shows the sense of art design and technological advantages of the maker, improves the game's recognition and makes the game more competitive than the others with worse character design. Moreover, video game is no longer an indepen-

dent business but could be only a part of the combined entertainment business. Successful character design brings more chances through derivative works such as motion pictures, comics books, music records and character toys.

However, to make a successful piece of character design for video game has never been an easy work. Some of the failures are failed to satisfy the customers' preferences and some are missed to match the design direction of the work itself. Wang et al. (2001) figured out the reason is that character design is very easy to be affected by the designers personal experience and his or her aesthetic accomplishment [51]. Since the experience of a video game has been extended from only gameplay to a mixture of gameplay and non-gameplay elements, such as story, visual and audio experience, character design has been given the responsibility to support the entire video game experience to be better. Under this premise, good character design should be able to show the accurate understanding of the game world and the characters own uniqueness.

Recently, benefit from the spread of some free art community sites like deviant art [19] and game developing tools such as Unity [35], more and more people who are able to become independent designers or developers, even those who are lack of high level designing or programming skills. As a result, independent game impacted the game industry greatly and brought a lot of new possibilities. However, this does not mean everyone could make high quality independent games especially character games. As mentioned, without understanding to video game and their players, to project the designer's personal experience and aesthetic accomplishment to the characters could be a common mistake for an amateur designer to make.

1.2. Thesis Objective

This study believes a better character design brings a better game experience. The objectives of this study is to find out the most important fact which decides the character design style for an original independent video game based on Japanese modesty culture called ODATE GAME by practical designing.

1.3. Thesis Overview

This thesis is presented in 7 chapters. Chapter 1 has introduced the background and motivation and objective for the study. Chapter 2 gives a glimpse of the general nature of video game character design and analyses the relationships between character design and gameplay and game story. Related works are reviewed in chapter 3. Chapter 4 presents the independent video game ODATE GAME. The implementation which includes 2D and 3D design of the game will be described in chapter 5. Chapter 6 evaluates the character design of the game which contains the objective and method of the evaluation at first and the results and findings at the end of the chapter. Chapter 7 concludes the study with a discussion of findings and limitations and proposes the future works of the study at the end.

1.4. Roles and Responsibilities

This thesis is a result of an independent video game developing project, which is a sub project of Empyrian[3]. My primary role in this project was the character designer. I was responsible for the 2D and 3D character design of this video game. I was also involved in the stage modelling and cut scene making of this video game and other supporting works.

Notes

1   In computer graphics, a raster graphics image is a dot matrix data structure representing a generally rectangular grid of pixels, or points of colour, viewable via a monitor, paper, or other display medium.

2   Cel shading is a type of non-photo-realistic rendering designed to make 3D computer graphics appear to be flat by using less shading colour instead of a shade gradient or tints and shades.

3   A real project of KMD aims to create new digital art contents.

Chapter 2

The Field of Video Game Character Design

First of all, this thesis will review the history and new trends of video game character design.

2.1. The History of Video Game Character Design

Although the graphic technology was not able to support complicated character design like today, many video game characters succeed and played important roles in the past thirty years of game history. Pac-man from the famous Japanese arcade game PAC-MAN published by Namco Games is a famous one of the successful examples. As figure 2.1 shows, the original Pac-man was very simple. It was designed from a pure idea which was also the core of the game system, eat, until a redesign happened in recent years which made him looks nearly like a human being. In fact, before PAC-MAN the game character controlled by the player was only a simple object like an aircraft, a spaceship or it might be a nameless solider. Pac-man is also the first game character who has a name and a unique identity which added the commodity property of character to video game [47].

Another example is Sonic from Sonic the hedgehog series published by Sega as figure 2.2 shows. This famous hedgehog that can run faster than sound is also

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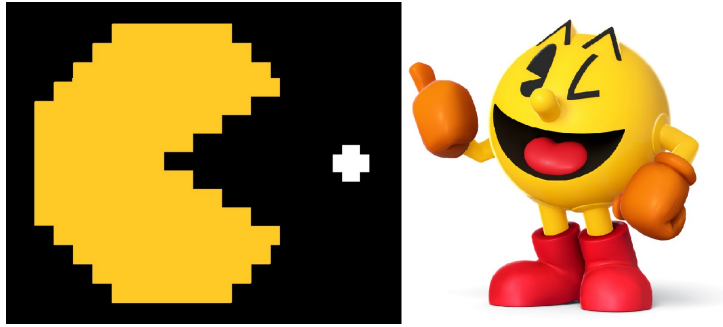
Figure 2.1: Original Pac-man [9] and re-designed Pac-man [27]
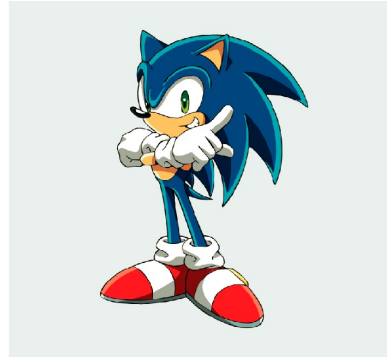
Figure 2.2: Original Sonic [32] and re-designed Sonic [31]

adored by millions of players around the world. He has a very stylish and smart look: blue skin, huge needles which looks like fin on his back, wearing the same shoes which Michael Jackson worn in his album Bad. The original design was a bit round and cute but the new design gave him a high waist and a pair of long legs which made him more fancy [48].

Figure 2.3 shows one more example is Lara Croft from the Tomb Raider series. She is the most famous female explorer in the video game history. She has a seductive body and a hot costume which makes her look sexy and healthy. Also her costume is very fit for intensive activities such as jumping and climbing, which makes her image make sense as an explorer. Her original image looks quite simple and crude compare to the evolved look today. However, the original image was still one of the most classic character and a milestone of 3D video game graphics [50].

As the hero of a video game usually has to interact with other characters, the makers also have designed many successful sub-characters who can be friends,

Figure 2.3: Original and re-designed Lara Croft [10]

villains or rivals. Game designers recognized the importance of designing enemy characters at a very early stage. In PAC-MAN, the designer made 4 kinds of enemy characters as figure 2.4 shows and they were given specified identities as Blinky, Pinky, Inky and Clyde with four different abilities [47]. As one of the
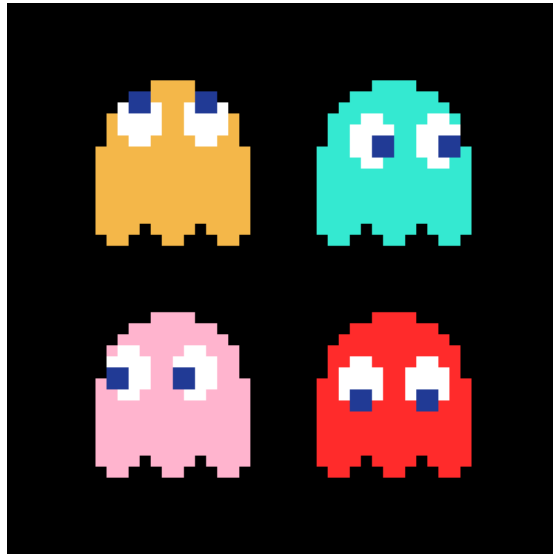
Figure 2.4: Enemy characters in PAC-MAN [23]

features of these classic designs, they are strongly associated to the game system.

2.2. The Trends of Video Game Character Design

In the current HD resolution age of video game, it is difficult to see a new character with a design as simple as Pac-man. Instead, characters usually appear with highly detailed photo-realistic 3D models, or fluid stylised animations because of the great progress in hardware and software technologies. Also, more and more video game works especially western AAA titles[1] feature a complicated story and cinematic storytelling, by using full motion capture[2] performance and film theory based techniques such as seamless cut and camera measurement and effects. In this trend, modern video character design also prefers a style of realism.

Figure 2.5 shows the designs of two recently most famous video game stars Kratos from God or War series and Master Chief from Halo series. The former is

Figure 2.5: Kratos [25] and Master Chief [21]

a Spartan Warrior with a background of Greek Mythology [53] when the latter is a Navy Officer with a background of science fictional universe [52]. The characters mostly have their unique characteristics and thoughts just like real human beings, their costumes are designed based on their identities and the story background, their equipment is designed according to real history, real science or fictional technologies.

Meanwhile, cartoon or comics style characters also have become much more beautiful than before and they are still adored in mainly Asian markets which have been greatly influenced by Japanese visual entertainment culture and the genres and design styles they prefer are different from that of western market.

Figure 2.6: Lightning [11] and Yu Narukami [12]

Figure 2.6 are two recently most famous Japanese video game stars Lightning from Final Fantasy series and Yu Narukami from Persona series. The former is a female soldier with a heavy destiny [49] in a background of original fantasy fiction when the latter is a senior high school student who can summon "persona" to fight [41]. The characters mostly have a very pretty face and their costumes and equipment is mostly designed according to fantasy fashion rather than reality.

2.3. The Principle of Character Design

The way of designing characters for a video game changes for different series, genres and so on. Therefore before designing the characters it is necessary to clarify what a kind of principle the design has to obey.

In recent years the game system tends to be no longer as simple as before. Hence instead of other common criteria this study differentiates video games in to three situations according to what degree of freedom a player can influence the game world. If a game provides high degree of freedom it is usually interaction-

centred that the player is playing as an agency and he or she can customise or influence the game world a lot including his or her avatar and the story. If a game provides low degree of freedom it is usually story-centred that the player is playing as more like an audience who has to move on the decided story by his or her own effort of clearing stage objectives. If a game provides medium degree of freedom it is more in-between that the player can have limited customisable contents but also a emphasised storytelling experience. The principles to design the characters according to the three situations as follows.

For games of high degree of freedom, the character design obeys open management. The character is only the avatar of the player that almost does not speak or react. One example is Gordon Freeman showed in figure 2.7 from the famous first-person shooting game published by Valve. Godon Freeman is a silent

Figure 2.7: Gordon freeman from Halflife series [4]

Physics expert. He looks intelligent and always keeps his mouth closed. This game is designed as a survival game and it makes the player have a sense of crisis from the game system [40]. Therefore the game does not interpret the character at all but let the player to experience everything by his or her own point of view. More good examples can be found in many famous MMORPG[3] games such as World of Warcraft published by Blizzard [39]. This kind of game usually has a huge amount of scenarios, but most of the NPCs[4] do not have meaningful identi-

ties but only ask the player to find some item or to go some where, which makes the player cannot remember them unless they have impressive looks. However,

Figure 2.8: (Idles from Idle Master Cinderella Girls [22]

some MMO games like Idol Master Cinderella Girls from Mobage [22] as figure 2.8 shows only have fragmentary interaction and story experience but provides a lot of meaninglessly cute characters for the player to collect through probability based in-game shopping system. The entertaining experience of these games is not the game itself but the cute characters. Here they can only be seen as bad examples.

For games of low degree of freedom, the character design obeys close management. In this kind of game the story and the identities of the characters have been decided at first that cannot be changed by the player. For example, figure 2.9 is Solid Snake from the famous sneaking-action game Metal Gear Solid series published by Konami Entertainment [38]. Solid Snake is a modern soldier and a sneaking expert who has a decent heroic spirit. Snakes strong and faithful looks have been mostly decided at the beginning, as well as the friend and enemy characters. The player has to accept Snake's looks, thoughts and acts, control him to win the stages and experience the story in Snake's point of view. This management itself is simple and it cloud be most effective in a game with a single route story. The game has a great chance to success if the management could have a

Figure 2.9: Solid Snake [13] from Metal Gear Solid series

good implementation. However, everything is going to be a waste if the player does not accept the character. Therefore, smart makers usually prefer to design the main character as a brave hero of heroine so that most of the players can accept them easily. There exist many other examples such as Kratos from the hero action game God of War and Nathan Drake from the adventure game Uncharted both published by Sony Computer Entertainment [46]. However, bad examples also exist in this kind of games. Here figure 2.10 shows Koshsh from Sengoku Musou 4 published by Koei Tecmo [30]. This game emphasises a history dramatic action experience. The background is the civil war history of Japan which happened around A.D. 1600 and all the characters are real in history. Koshsh looks and acts not really matches the history but more like a glamour modern girl. This made the players confused about whether history is the core content of the game.

For games of medium degree of freedom, the character design obeys semi-open management. This kind of game mostly emphasises an open world or sandbox game experience. In the game the player has a limited freedom to shape the characteristics of the main character through his or her in-game behaviours or making a series of different decisions so that the story could vary in different game rounds. Actually, many novels or plays shape the characters using multiple ways instead of letting them speak their lines simply to enhance the storytelling.

あなたに不幸、呼んであげるわ♥

小少将

ＣＶ 白石 涼子

傾国の美女

魔性の魅力を持った妖艶な美女。
絶えず権力の傍にその姿はあるが、ひとり
気ままに動き、神出鬼没に戦場にも現れる。
自身を「不幸を呼ぶ女」と称しており、
男たちを惑わし意のままに転がすことで
四国征服を企む。

アクション画像　プレイムービー

Figure 2.10: Koshsh [17] from Sengoku Musou series

This also happens in the field of video games, which does even better because of the gameplay or interaction system. After a series of stages and events, the game lets the player make the decision by him or herself, so that the player can project his or her own thoughts on the character. The Elder Scrolls showed in figure 2.11 published by Bethesda Softworks [37] and Red Dead Redemption published by Rockstar Games used this kind of character management [36]. Because in this kind of games a player can do a lot of in-game behaviours including crime, the acceptance issues of players and the critics are most focus on the moral part of the characters' identities. Here figure 2.12 shows Niko Bellic from Grand Theft Auto IV published by Rockstar Games [20] who is a controversial example. Niko Bellic is a down-to-business smuggler but is very protective when it comes to his family and friends. The violent contents in this game caused a lot of controversies about crime and nationality in the society.

Figure 2.11: Elder Scroll series [6]

Figure 2.12: Niko Bellic [8] from Grand Theft Auto series

Notes

1   In game industry, AAA titles refers to those games with the highest development budgets and levels of promotion.

2   Motion capture is the process of recording the movement of objects or people which is frequently used in modern game industry.

3   MMORPG refers to massively multi-player online role-playing games which allows massive players to play online together.

4   NPC refers to a non-player character that cannot be controlled by a player in a video game.

Chapter 3

Related Works Review

No matter novels or pirctures, an artwork is usually inspired by other works, which is the same for video games. ODATE GAME in this study was mostly inspired by three excellent music video game works from multiple aspects. They are Osu! Tatakae! Ouendan, Rhythm Tengoku and Space Channel 5.

3.1. Review of Osu! Tatakae! Ouendan

Osu! Takakae! Ouendan, sometimes is referred to as simply Ouendan, is a rhythmically cheering music video game publishedd by Nintendo. It presents the gameplay in 3D graphics and the story in 2D animation. In Japanese, Ouendan refers to a cheering squad who provide motivational chants for people in every occasion [45]. In this game, several characters are in their stories are in hopeless situations and cry for help. In response, an all-male Ouendan wearing distinctive black Japanese school uniforms and red armbands as showed in figure 3.1 is summoned to help each character get through their tough situations. The player has to perform the different actions according to the markers appear on the screen which are accompanied by specific songs. The stories are most inspired from Japanese culture and presented in a comical style. For example, the background of the first stage is that a high school student who faces college entrance exam is distracted from studying by his family so that he cries the Ouendan to help. For the art style features of Ouendan, it has a wild and rough look and uses strong colours and high contrast arrangement. The members of Ouendan looks strong,

Figure 3.1: Osu! Takakae! Ouendan [7]

positive and hot-blooded. They are dream keepers and always seeking people to help. Meanwhile the other charters appeared in the game are always crying and struggling for something they have to accomplish, most of the characters are common people and looks nearly depressed as figure 3.2 shows. The game also uses a lot of flaming effect to strengthen this feeling. This character design is very impressive and highly matches the story, but it might be a kind of special taste that would not be accepted by everyone. However, this game combined music game and the Japanese cheer up culture in a humorous but stylish way. With these features this series won a lot of positive reputations no matter in Japan or oversea markets.

3.2. Review of Rhythm Tengoku

Rhythm Tengoku is also a famous music video game published by Nintendo. It features a number of unique two minutes short stages while each of them has its own special unforgettable rhythm and gameplay [45]. Similar to Ouendan, in this game the player has to perform actions to match the rhythm to which the game expects. The stages and their short stories are fulfilled with Japanese humours and

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Figure 3.2: Characters from Osu! Takakae! Ouendan [1]

presented in a simple but funny 2D comical style as figure 3.3 shows. For example, the first stage is a Karate player who lacks mental strength that always makes his master angry about it. The player has to train him according to the rhythm to help him get stronger. Another character is a commander who is marching with a team of rookie soldiers. The player has to react to the rhythm to make the soldiers step in the same pace. In the art part of this game, it uses mostly pastel colours to have a delicate and cute look and the characters are extremely simple that have nothing but to serve the two minutes stages' backgrounds as figure 3.4 shows. This straight design style might be more widely acceptable but meanwhile they might not be able to strengthen the different short story experience. However, the game itself is still adored by a lot of music game lovers around the world.

Figure 3.3: Rhythm Tengoku [3]
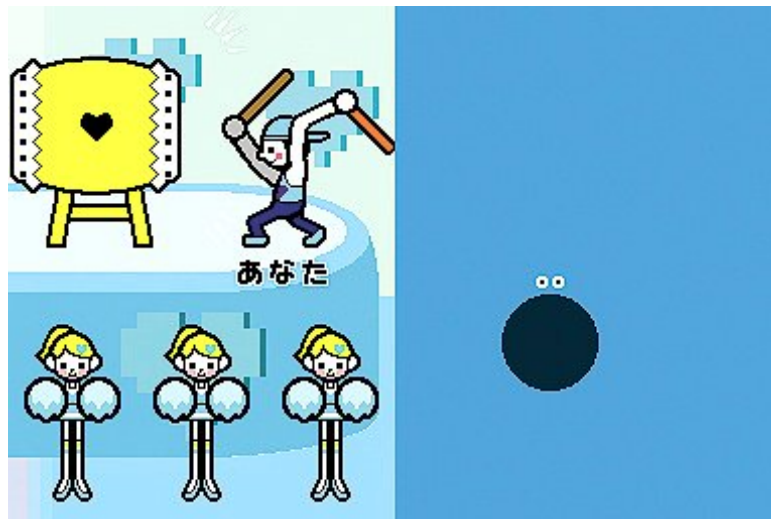
Figure 3.4: Rhythm Tengoku [5]

3.3. Review of Rhythm Space channel 5

Space Channel is another famous music video game published by Sega [33]. This game use full 3D graphics to present its unique contents as figure 3.5 shows. During the gameplay the characters perform a sequence of dance moves according to the music beat. The player has to remember the beat and perform it again

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Figure 3.5: Space Channel 5 [34]

by pressing correct buttons. The story describes a future interstellar television station fight for ratings. One day a strange alien race starts kidnapping hostages in the station and force them to dance. The heroine Ulala is a top reporter of Space Channel 5 who is been sent to report the news and rescue the hostages. The game succeed to create a famous music game star Ulala who is young, tall and cute. She wears a future sensed sexy costume, carries with her microphone and two guns which shoot Chu Beam. The design is expected to be widely acceptable and matches the story perfectly. There are also many sub characters and enemy characters with good sense of humour, such as Space Michael based on Michael Jackson and Morolians who invaded earth and force people to dance as figure 3.6 shows. Due to the perfomance in many aspects, this game received great success and millions of fans of Ulala.

3.4. Summary of Subjects

All of the three music games designed the characters basically according to close management mentioned in last chapter although their stories are not very long or complicated. In fact, No matter short or long, a story or background is
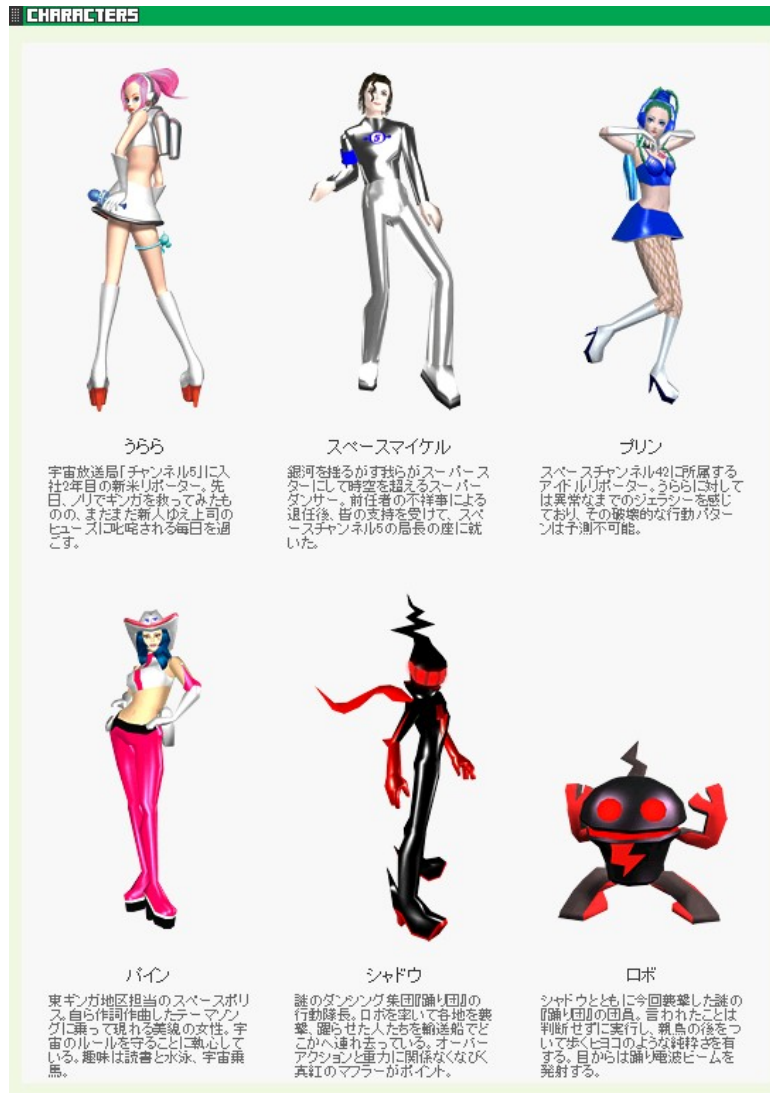
Figure 3.6: Characters from Space Channel 5 [18]

necessary for a video game to explain what does the player act for. The length of the story does not decide its quality as well. Although the story could be only a few of seconds, an experienced designer can use images, sounds and texts to make a good storytelling. Instead, a well-designed and well-interpreted character could bring the player more identifiable and immersive experience. However, for particular games they might have differences in their design directions because of their different themes or their targets users. Some of them aim to help interpret

the story well, some of them just want to be more widely acceptable.

The idea of creating ODATE GAME came out after the reviews of the similar game works above. Considering the features of these games, before designing ODATE GAME there are several subjects need to be considered. ODATE GAME provides similar gameplay to general music games, but it emphasises storytelling experience like Ouendan. Therefore it also designs the characters according to close management. Meanwhile it wants to target a wide user range like Rhythm Tengoku. Should the character design matches the story as much as possible or to satisfy players' preferences as much as possible? Should ODATE GAME present its contents in 3D graphics like Space Channel 5 or 2D animation? How to achieve the objective efficiently as an amateur developer? These subjects will be discussed in next chapter.

Notes

1   In game industry, AAA titles refers to those games with the highest development budgets and levels of promotion.

2   Motion capture is the process of recording the movement of objects or people which is frequently used in modern game industry.

3   MMORPG refers to massively multi-player online role-playing games which allows massive players to play online together.

4   NPC refers to a non-player character that cannot be controlled by a player in a video game.

Chapter 4

ODATE GAME

4.1. The Idea of ODATE GAME

The idea of ODATE GAME is from the modesty culture which is very common in Japanese society. In fact, this culture was firstly invented in ancient China. Jia et al.(2002) pointed out the traditional Confucianism considered modesty as one of the basic virtues of people, and this was transformed into a kind of common sense of the society [54]. This is also happens in Japan which is a country influenced by ancient China greatly in the history.

After importing the culture from China, Japanese people made their unique explanation to it and finally customised it to make it adapted to a different civilization. In peoples daily life, personal space, social interactions vary according to each culture and how assertive, passive or aggressive the environment is. Japanese people are extremely sensitive to their social environment. They use the word "Kuuki" to describe it as Kincaid (1987) mentioned [43]. Japanese considered "kuuki yomi" which means to read the mood of the environment as a kind of rule of their social life. Figure 4.1 shows an example of mood reading use a situation of taking the seats on a train. If the man sits in the middle of the seat despite the couple who wish to sit next to each other, he would be considered as lacking of mood reading capacity.

In Japan people have to be as modest as possible rather than to accept flatter positively which can put serious risk at their image to public. For example, if somebody is being praised maybe he or she is not really being praised but is
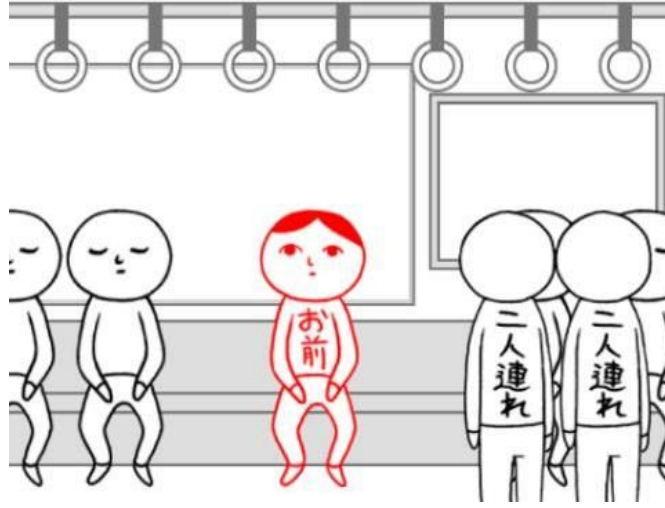
Figure 4.1: An example of mood reading [2]

getting damaged at the image because of standing out in the social group or community. To avoid this dangerous situation people have to read the mood and make correct reaction to keep their social image. Therefore Japanese people usually prefer to decline praises and flatter the others to appeal the virtue of modesty and meanwhile to protect themselves. Those who do not obey this rule carefully might meet trouble or even cause conflict in their social community. This fact could be transformed into a game idea, because the flattering and declining communications of Japanese people are just like rounds of attack and defend. If somebody can survive in a lot of fierce flatters he or she will be considered to have "kuuki yomu chikara" which means strong mood reading capacity.

4.2. Design the Game

ODATE GAME is a touch based music reaction video game. It is similar to most music reaction video games that the core of gameplay is to touch the correct incoming marks which are arranged according to a piece of rhythm. However, the unique thing is that it transformed the Japanese flattering social communication activities into a game concept. Also its appearance is in a cartoon style rather than photo-realistic which is similar to Ouendan and Rhythm tengoku mentioned in

previous chapter. However it is not that rough like Ouendan or simple like Rhythm Tengoku or fancy like Space Channel 5. It is a bit neutral compare to them but features an ironical humorous sense. The game aims to deliver the mixed fun of music reaction game and the humorous short stories based on Japanese modesty culture to the player. The detailed design process of this game is explained as follows.

4.2.1 The Gameplay of ODATE GAME

ODATE GAME is expectedd to let the player have the stressful feeling of getting surrounded by the people who want to damage the social image of his or her by making him or her standing out in the group. And the more the main character is trying to defend the harder people will flatter. Therefore it uses 3D graphics to present this experience in the 3rd person view point of the main character. It also uses a exaggerated height difference to strengthen the stressful feeling. In ODATE GAME flatter is seen as a kind of attack. The player has to touch the incoming flattering words according to the rhythm to repel them back and defend the characters social image.

As figure 4.2 shows, there is a small character which is the player and a huge enemy in front of him. The enemy will attack the player with flatter words that fly towards the player according to the rhythm and what the player has to do is to repel them back. If the player missed to repel the attacks, the hit point bar on the right top of the screen will decrease and the balloon will become bigger and finally the player lose the game with a self explosion which also related to a Japanese word "jibaku suru". If the player make no miss, the combo bar on the left bottom of the screen will increase, the music will become faster and finally the player will achieve a higher score. The more combo the player does means the stronger of "kuki yomu chikara" the player has and this will be calculated into the final score. The player will see story events if he or she succeeds in the stage and new stage will be unlocked.

Figure 4.2: The gameplay of ODATE GAME

4.2.2 The Story of ODATE GAME

This game emphasizes humorous story experience and it features a short story for each stage and they are presented in a comical style. The main characters in these stories are mostly the successful people in the society and they are in a situation that facing the flatters from the losers. They have to survive from the flatter attacks defend his or her social image as modest to win the game.

For example, in the first stage, the main character is a high school student who successfully entered a good university while his classmates are mostly even failed the college entrance exam. When they get gathered in a Japanese bar to have their high school graduation party, the classmates start to flatter the main character so that the main character has to defend his social image to clear the stage. The second stage describes a young woman who is a rookie TV announcer. After her debut, she has become the most popular because of her sweet looks and voice. The day she is the hostess of a variety TV show when several senior female announcers and the producer are the guests who are jealous of her success. She has to defend her social image from the flattering of them in the show to clear the stage. Another stage features an idol maniac who is very addicted in idol goods collecting. One day he goes to Akihabara street[1] to buy a new released idol CD. He luckily draws a prizewinning ticket to have a chance to shake hands with the idol. However, he found he was surrounded by the other maniacs who did not win

it. The maniacs start to flatter and disturb him so he has to defend himself to make the way to the idol.

These stories are firstly painted into storyboards from the plots then to be made into cut scenes played during the game events. Figure 4.3 is an early story
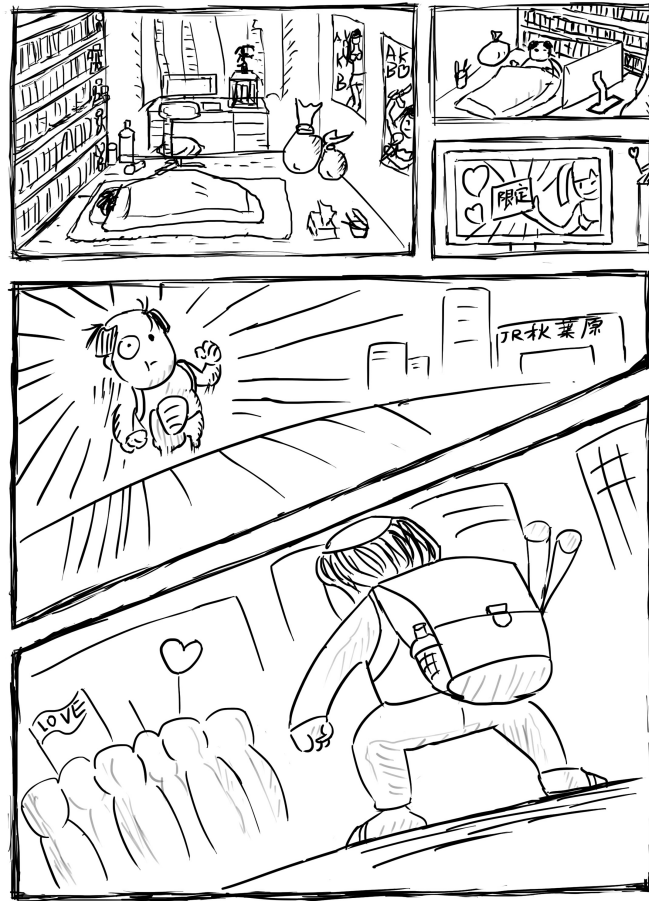

Figure 4.3: Early story board design of idol maniac episode

board of this episode.

4.2.3 The Characters of ODATE GAME

As mentioned that this game emphasises storytelling experience so that it also designs the characters using close management. For each stage there is a main character and a number of enemy characters. The main character has a high social state at the first because of his or her success. Here they are considered as "winners". Each main character is surrounded by the "losers" who are in the same group or community but failed in life and become jealous of the "winners". The characters are all designed based on their own unique identities and the roles they played in the plot.

According to the plot, the character design should be able to deliver the image of risky human relationship and humour elements. For the main characters, as mentioned that they are the winners so that they should look positive. However, they should not be powerful so that their social image is squishy enough to be damaged by others. Their other characteristics are left plain or to rely on the plots. The enemy characters are not that independent as main characters. According to the daily life of people's social life, as they are considered to be a social community, especially Japanese community, there exists a sequence of powerfulness level. In each community there is an leader who is the most powerful person and challenge the main character more fiercely. Beside the leader there comes a sub-leader who is less powerful but cunning to make the situation even worse. Also there have to be several followers with different characteristics especially in their looks to fulfil the community. This is the detailed thinking of the charter design for ODATE GAME after some discussion of the develop team and other Japanese local people.

For example, the first stage introduces six enemy characters except the main character as showed in figure 4.4. Four of them are the classmates of the main character. They are a juvenile delinquent who is expected to be hot-blooded but a bit scary (leader); a fat guy who is nice but talky (sub-leader); a small guy of active temper and a tall gloomy guy; a waiter who talk ironically and a sweet charming waitress (the followers). Their looks were a bit like Ouendan style but not that hard and straight, instead they contained a kind of maliciousness but stupid. And the female character is a bit like the simple and cute style of rhythm tengoku. These six enemy characters appear to flatter the main character continuously and it will finally become a chorus to challenge the main character

Figure 4.4: Enemy characters of the first stage

at the end of the stage. The same situations happens in other stages with their own unique characters.

However, it is not enough to say the characters have been accurately portrayed according to their identities. Even it is true, players can still possibly dislike them because of their own personalities and preferences. If the character design failed to satisfy them the whole game experience could also be influenced. Therefore after some further discussion and adjustment of the design, two varied design plans are completed which tried two new directions on the characters. According to the possible preference of player, one of them is more neutral and the other one is even cute which should be more acceptable to most people.

There are different criteria to consider a piece of character design is good or not. However for ODATE GAME here the study suggests the opinion which have been discussed in previous chapter. Therefore it assumes that:

- For ODATE GAME, the recognition on character is a more important fact than player's personal preference when making decision of the design style for the game.

A public investigation conducted to examine this hypothesis will be illustrated in the sixth chapter.

Notes

1   Akihabara is a district in the Chiyoda ward of Tokyo, which is famous as a Japanese animation and idol culture centre.

Chapter 5

Implementation

5.1. Build the Prototype

The implementation of this game is separated into art part and system part. This study only introduces the art part, which includes 2D design, 3D modelling and cut scene making.

5.1.1 2D Design

The first process is 2D design, which is the most basic step of all. Because the game uses a comical style, the characters must also be in the same style. Generally, the three fundamental elements which decide a characters basic image are the body, the face and the costume. For the male characters, in order to emphasise the comical style, they are firstly designed to have a deformed body proportion. Based on this premise, the unique characteristic of each character are detailed in different body shapes such as tall, small and fat. Secondly, their costume varies according to their identity and the body shape. The characters are finally decided after designing the face, which might be the most important part of this step. Meanwhile, it is also the most difficult part because any slight change of a characters face could totally subvert the entire image of the character or even the game. Figure 5.1 shows the early rough design of two example characters which are planned to appear in the game. The first one is "Keio boy" and the other one is "Baseball player". They are not adopted finally because they were

Figure 5.1: Early rough character design of "Baseball player" and "Keio boy"

designed in the early stage that the designer was without a deep understanding of the game story. Meanwhile they seem lack of consistency which is important in making the decision of the basic style of the game.

5.1.2 3D Modelling

Next process is to build 3D models based on the 2D designs, which includes a series of works in sequence. As amateur developers, all of the modelling skills are obtained through instant research and learning. The general work flow of this process is showed in figure 5.2. The traditional method of modelling is to create and transform the polygons, edges or even vertexes of regular geometries, which is the basic function of 3D Modelling software such as Autodesk 3ds Max [14] as figure 5.3 shows. This process is quite complicated that requires basic knowledge of the software and a lot of practice to master it. However, this study uses an easier way to do it for the independent developers who are lack of traditional modelling skills or practice.

Digital Sculpting changes 3D modelling into a nearly analogue process. It does not require a lot of basic knowledge or practice to start. Everyone can create a 3D model through digital sculpting just like creating a virtual statue using a mouse

Figure 5.2: Work flow of 3D Modelling

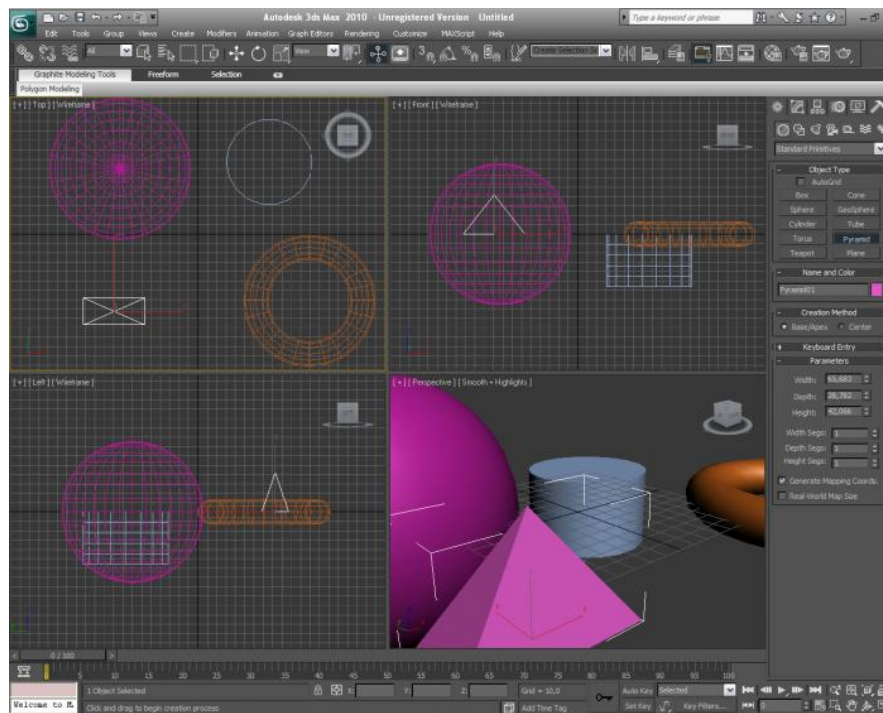Figure 5.3: Traditional 3D Modelling using 3ds Max

or pen tablet input system. This study uses the software Pixologic Sculptris [29] to do all of the digital sculpting.

A clay ball appears in the middle of the work panel when Sculptris is started. The interface is simple and friendly. User can move, rotate, scale or do more actions to transform it as figure 5.4 shows. User can use mouse to sculpt out the
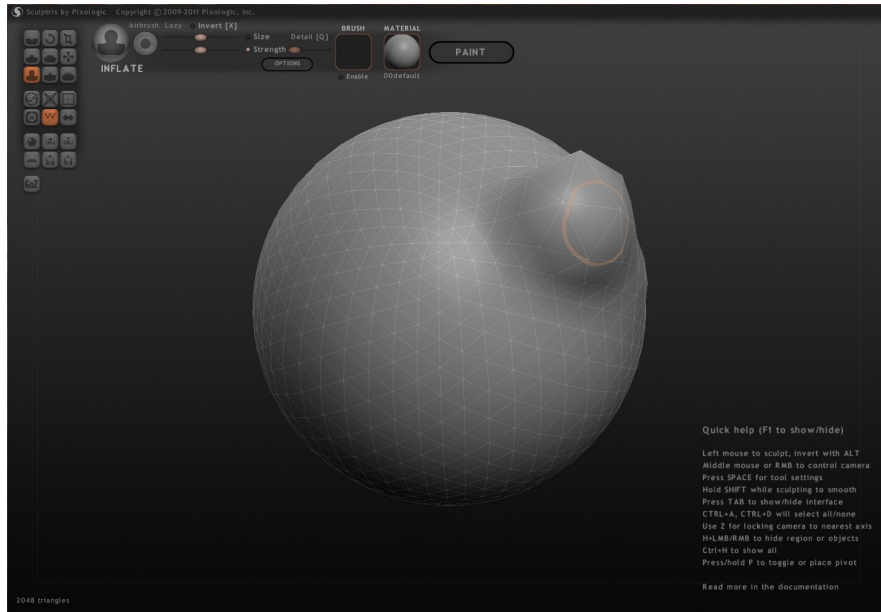
Figure 5.4: Digital Scultping using Sculptris

details of the model. Sculptris also supports pen tablet input system that makes the process even comfortable for the artists who use it in 2D design and the user experience is quite similar.

The next step is to paint the texture for the models as figure 5.5 shows. This

Figure 5.5: Left is the raw model and right is the painting function

process is relatively simple compare to the others. Texture painting can also be done using the paint function of Sculptris. Once the texture painting is done it can be export as texture mapped ".png" image, which will be import into the

game engine to be attached to the animated models.

The last step is animating. Once user completes a model using Sculptris, it is only a mesh like a statue that cannot move at all. Therefor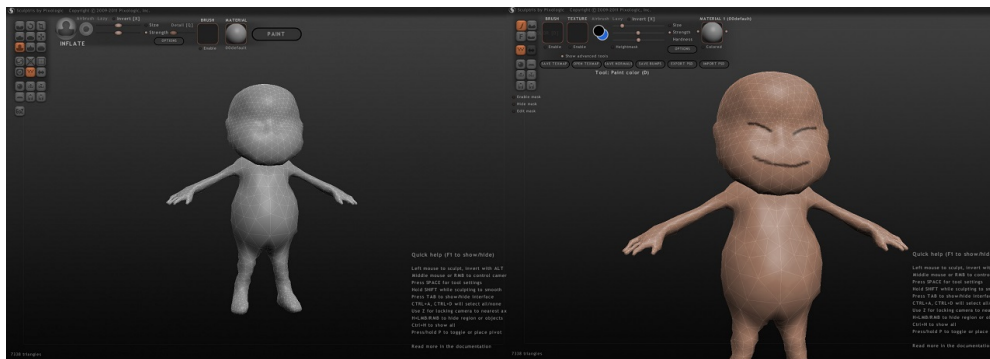e it cannot be used in the game directly. This is not a limitation of digital sculpting because it also happens in the traditional method. In order to animate the model, it must get rigged and weighted, which is process can be seen as to insert bones into a body. In the past, a 3D artist had to do it all manually, which was a tough work. However, according to Baran and Popovi (2007), it is possible to automatic rig a 3D Model which just need to do skeleton embedding and skin attachment [42]. After a few of research it is known that benefit from the progress of software technology, some 3D modelling software start to add auto rigging system or some equivalent function. For example, the famous open source 3D modelling software Blenders [16] has some auto-rigging scripts which are developed by the community. This study uses the Auto Character Setup kit [15] of Modo [26]to animate the characters of OTATE GAME.

Before the rigging process[1], there is some preparation need to be done. Firstly, as Scultpris uses its exclusive format ".sc1" format file, the models must to be converted into a universal format such as ".obj" file. This can be done simply by using the export function of Sculpris. Then the model can be imported into Modo to continue the animating process. There is a setup panel in Modo that locate the Auto Character Setup kit. When a mesh is imported, it needs to be assigned to the character at first. Then user can add the skeleton guide which is to embed the bones to the mesh. Auto Character System provides several default guides as showed in figure 5.6. Once the user applies the guide to the character mesh, a pre-set structure would appear in it as figure 5.7 shows. After binding the proper guide to the character, user has to move the bones to make them fit the skin accurately. Then it comes to use the weighting function to add weight to the bones as showed in figure 5.8, which is equal to skin attachment. This process is to connect the bones with the body so that the body will move with the bones together.

After this process, the rigging of the model is done and the character can be animated finally. User can start to animate the character by moving the bones frame by frame as figure 5.9. If the user has a motion file which can be captured
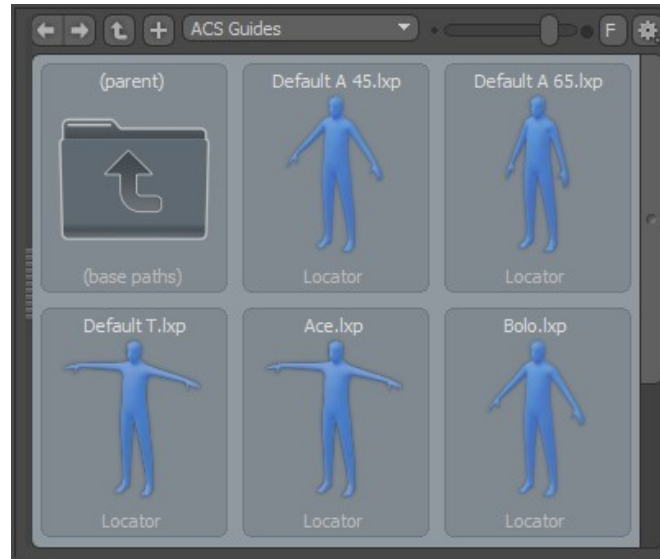
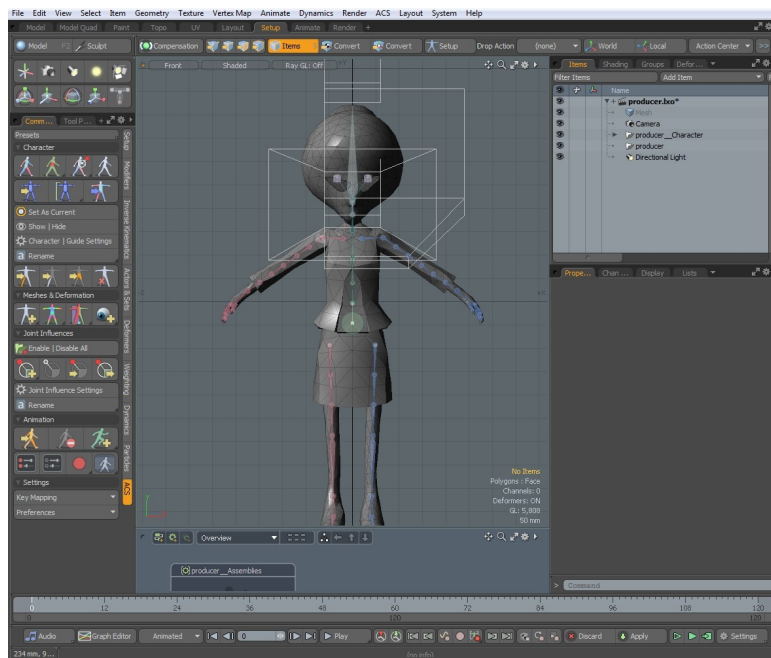Figure 5.6: The default guides of Auto Character Setup System

Figure 5.7: Applying guides to the mesh

from a motion actor by some capturing equipment such as Microsoft Kinect [24], he
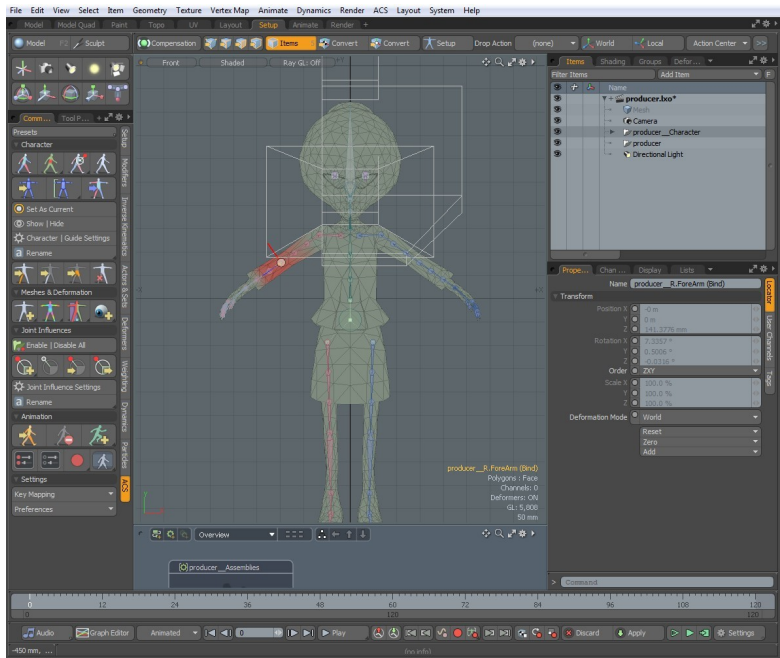or she can also apply it to the rigged character which would simplify this process.

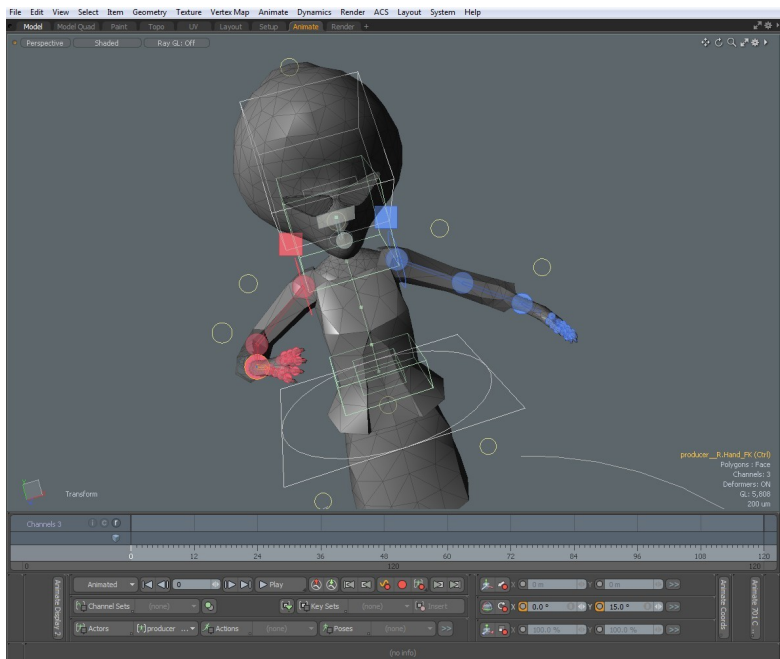Figure 5.8: Adding weight to the model

Figure 5.9: Key-frame animating

Here the character can be imported into game engine for the programmer to make them perform actions in the game stages.

5.1.3 Stage and Cut Scene Making

As the characters and the game itself needs a stage to perform the gameplay and story, to design and make the 3D stage models is the next process needs to be done. The stage would be introduced at the stage selecting menu with a 2D image and after stage selecting the player will enter the 3D game stage. For example, the first stage is the Japanese bar stage which has been mentioned before. When designing this stage, a lot of real Japanese bar photos have been reviewed for the designer to get the accurate image. The outside look, interior design and the decoration objects are designed according to this premise as strict as possible. The modelling process is to build the room and interior objects separately then to place the objects inside the room. They also need to be painted and textured carefully. The results are showed in figure 5.10 and 5.11.

Figure 5.10: 2D outside design of Japanese bar

Another work is to make the cut scenes. Similar to the other video games, in ODATE GAME, when the player is playing the game, a series of events would happen according to the stage progress. These events take place as animation cut scenes. Because this game uses a Japanese comical style to interpret the story, the cut scene is also decided to be made like an animated comic book. This study uses Adobe Photoshop [28] to paint the comic stories. During the painting process, it
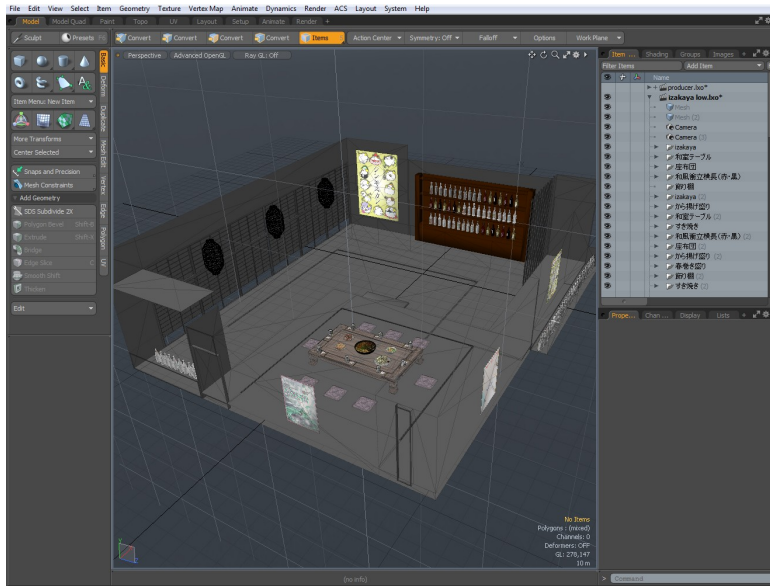
Figure 5.11: 3D interior design of Japanese bar

leaves the characters, backgrounds, dialogues and other effects as different layers so that the programmer can import them into game engine to transform and edit them separately. In this way a live comic effect can be realised. Using the first stage as an example, figure 5.12 shows the painting process.

Notes

1   The process to specify the internal skeletal structure and to define how the input motion deforms the surface of a 3D model.

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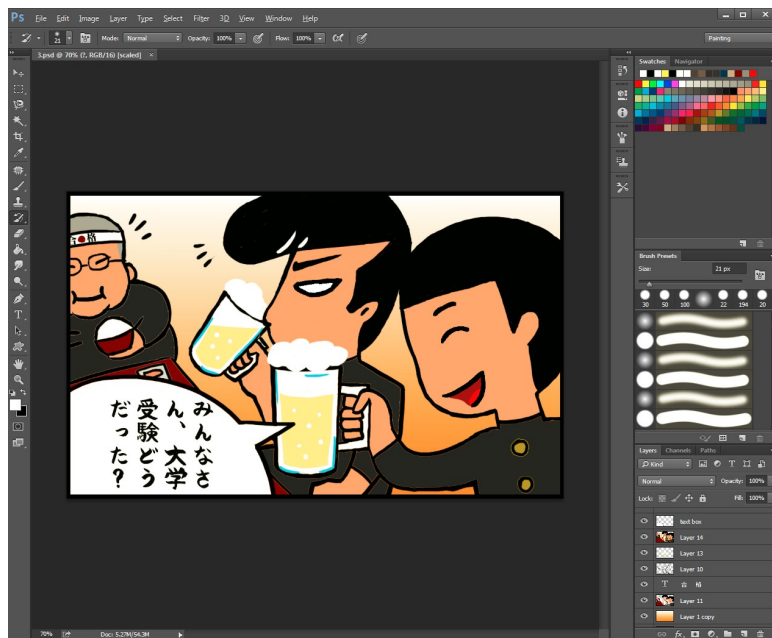
Figure 5.12: Comic cut scene painting

Chapter 6

Evaluation

6.1. Evaluation Aim

As discussed in previous chapters, the character design style of the game should match the game itself, in both gameplay and story aspects. A designer usually design the characters according to his experience and understanding to the game, but it is possible to be affected by his own personalities. Players might have different recognitions on the characters with the designer and their personalities and preferences also could affect their decision.

This evaluation aims to examine the hypothesises mentioned at the end of chapter 4, in order to explore what is the most important fact to decide the best design style for ODATE GAME. By conducting an investigation of players' preferences and recognitions on the game and its characters, a lot of objective facts have been discovered.

6.2. Evaluation Method

Twenty of participants with different ages and genders are conducted to join a survey. 16 of them are male and 8 are female. The youngest participant is 9 years old when the eldest one is 78. The average age of this group is 35.85. They will be showed a short piece of demo video about the gameplay and an animation cut scene of the first stage, with the face of each character covered by a question

mark as figure 6.1 shows. Before they complete answering the questionnaire, they

Figure 6.1: Characters covered by questions marks on their face

will not be told any information of the game in order to prevent preoccupation which can create bias to the survey result. The details are as follows.

There are totally four questions for the participants to answer, which are showed in figure 6.2.

Firstly, question 1 is expected to obtain the first impressions about the characters of the game. The participants will have to start to answer the question after they watched the demo video already, to test if the demo and the cut scenes are clear enough to provide the overview information of the game.

Next, question 2 wants to understand the acceptances and preferences of the participants about the characters despite the identities they have been given. Therefore, beside the primary design style, two varied design styles are prepared for the participants. They are groupped in to group A, group B and group C as figure 6.3 shows. Each of them gives two kinds of positive images and two kinds of negative ones to the participants. What they have to do is to rank the different images with number 1 to 10.

Then the participants will be given the identities of the characters and answer question 3. This question will reveal whether their preferences or their recognitions on the characters would be the reason for them to make the decision.

Finally, question 4 concerns the attitude of the participants about the influence on character design from the story. If they consider story is important then it suggests they would like to have a good game experience with meaningful characters based on the story rather than just look cute or cool with no reason.

ODATE GAME Character Design Questionnaire

1. Please use several words to simply describe what do you think the game is about.

   _____

2. Please rank the images A, B and C from 1 to 10 according to the different impressions they give you.

	Cute	Ugly	Funny	Scary
A				
B				
C				

   Here are the identities of the above characters. They are a juvenile delinquent who is expect to be hot-blooded but a bit scary, a fat guy who is nice but talky, a small guy of active temper and a tall gloomy guy, a waiter who talks ironically and a cute waitress.

3. Please draw a "○" on the one which you think it **SHOULD** be used in this game under the above

                   A   B   C

4. To what degree do you think character design should be according to the game story, please rank it from 1 to 10

   _____

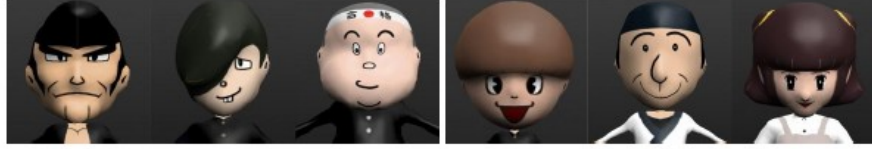Figure 6.2: Evaluation questionnaire sheet

6.3. Result and Feedback

Here is the result of the investigation. For the first question, 12 out of the 20 participants recognised the game is a music game and 7 of them successfully gave a specific word to describe them, such as modesty, irony, self-defending which just
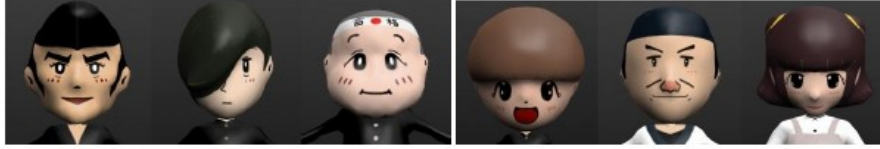
Figure 6.3: Three groups of design plans

or nearly matched the correct answer. This suggests the gameplay and cut scenes are basically able to convey correct information to players. However, there are 5 participants did not give their answer to this question and they have a common point which is that the average age of them is 61.4 which is highly above the total average age 35.85. The reason could be the demo video, or the question was not clear enough for them, but after they were interviewed about it, the reason turned out to be that they are not familiar with video games.

For the second question, the participants gave their ranks to the three design styles according to their first impressions. The specific data is included in appendix and the result of statistics is as follows.Figure 6.4 shows the average scores of design style A, B and C in the four kinds of images. It is clear that style A has a very high score in funny image and style C has an absolute advantage in cute image when style B is relatively in-between. Meanwhile, in the aspect of negative image, style A is considered more ugly and scary than style C when style B is still neutral. Assuming that scores of positive images have positive effects and the
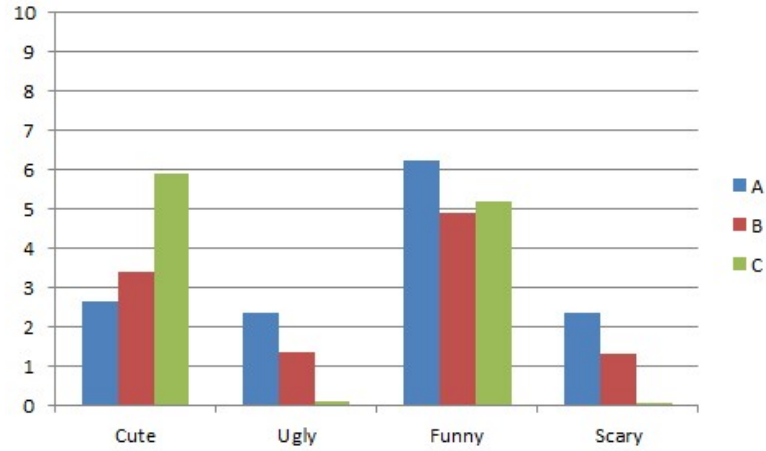
Figure 6.4: Average ranks of the three design styles

scores of negative images have negative effects on people's preferences, generally people would slightly tend to choose style C.

As the participants have different properties, different groups might have different result. Here are the comparisons between the male group and female group about their images of style A, B and C.

Figure 6.5 figures out female players have weaker acceptance of characters' negative images, and they are more sensitive on cuteness. Meanwhile figure 6.6

Figure 6.5: Female participants' average ranks of the three design styles

shows male players have a stronger acceptance about the negative images and they
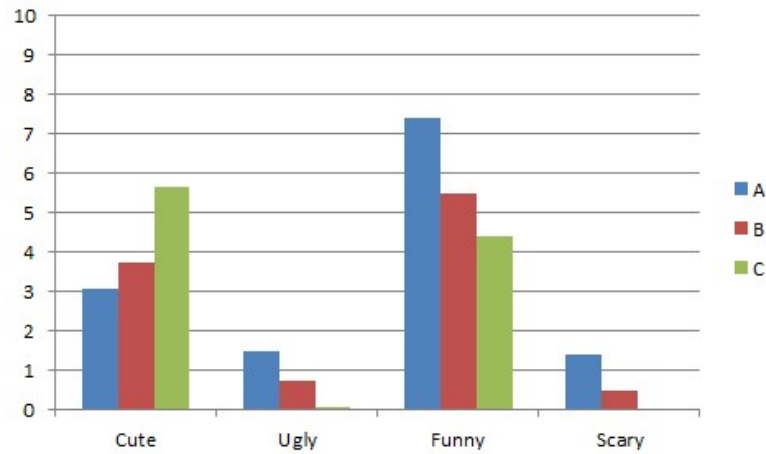
Figure 6.6: Male participants' average ranks of the three design styles

concern more about whether the characters look funny the most. This suggests the designer should also consider the difference between female players and male players although ODATE GAME is not a video game that targets a narrow user range.

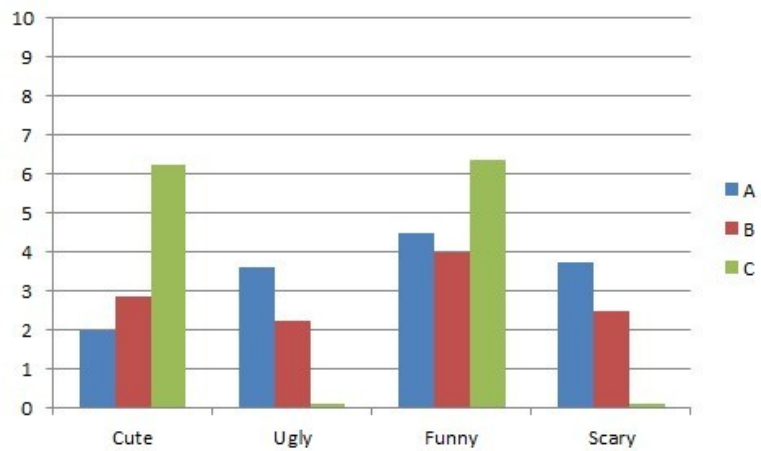However, when the participants were told the identities of the character and answered question 3, the results turned out to be different. Even most female players chose style A or style B despite their personal preference on style C. As figure 6.7 shows, 60% of the participants finally chose A for the game. This prove that what make people decide is their recognitions on the characters' identities and characteristics rather than their personal preferences. They finally suggest design style A because it relatively matches their recognitions the most.

Characters' identities are the important element of the story, meanwhile the others could be the background, the plot, the performance and so on. The last question expects the participants to give their attitude about the total influence on game character design of story including all the above. The average of the rank they gave is 5.45 out of 10, which slightly suggests it is important for them to have a good game experience.
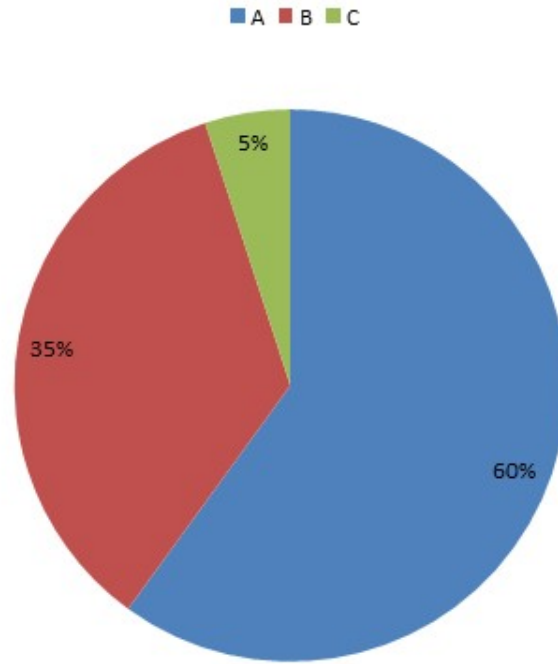
Figure 6.7: Result of question 3

6.4. Summary of Findings

In conclusion, in the limited range of ODATE GAME, the participants consider their recognitions on the characters more important than their personal preferences. Therefore, although they think Group B and Group C are more friendly and acceptable by first look, they still suggest the designer to choose Group A as the final plan. It also revealed that they prefer a game experience of ODATE GAME with well portrayed meaningful characters rather than the ones just look cute or cool but meaningless.

Chapter 7

Conclusion

7.1. Conclusion

This thesis presented an original independent video game ODATE GAME and illustrated how the most proper character design was made for it. Firstly, by reviewing the history and trends of game character design it summarised three kinds of ways to manage character design and used close management as the principle to design the characters for ODATE GAME. Secondly it reviewed similar game works and introduced the idea and design of ODATE GAME and illustrated the similarity and uniqueness between ODATE GAME and them. Then it explained the subjects of character design for ODATE GAME and proposed the hypothesis. Thirdly it illustrated the process of the designing and modelling of the characters. Finally it evaluated the character design and examined the hypothesis by conducting a public investigation. Multiple design styles were examined by a group of participants and finally the most proper design style was figured out to be the one that matches players' recognition on the characters' identities the most rather than the others which just look more friendly. Therefore, for ODATE GAME, it is more improtant to make the characters match the gameplay and story than players' preferences.

7.1.1 Limitations

To design characters for a video game, it firstly needs to start from the understanding of the game itself, which was proved necessary buy many successful character design cases in the video game history. Recently, benefit from the progress of hardware and software technologies, video game has obtained the capacity to provide more and better entertainment experience than the past. This basically refers to the visual, audio and storytelling aspects in present state.

ODATE GAME aims to bring the mixed fun of mucis game and featured stories to player. Therefore the characters must be made according to their own identities and the roles in the story plot to ensure the game experience. Compare to related works, the character design of ODATE GAME chooses an neutral direction that not too rough and hard like Ouendan or too simple and cute like Rhythm Tengoku or too fancy like Space Channel 5. It keeps the uniqueness of ironically humorous style but looks still fairly acceptable to the players. However, generally game character design still needs to satisfy players' preference to a certain degree. Because a player would buy a video game only if he or she likes the character design. If the character design cannot attract a player's attention at first, no matter the character has a perfect personality or impressive performance in the story, the player possibly would not thinking the character design is successful. Therefore, players' preference is still an important fact that needs to be considered carefully in other cases.

Also, the 3D modelling process in this study allows the designer to create the model with an analogue experience that does not require a lot of traditional 3D modelling skills and practice, which is suggest to be practical for an independent video game developer. It makes the process fun and saves a lot of time. However the shortcoming is that as an analogue process it could generates redundant information such as an unnecessary amount of polygons. This can make the model too heavy for low spec devices. The developer has to consider the power of the target devices to control the polygon numbers in an affordable level.

7.2. Future Work

The future work of this study will focus on the improvement of the exist character design and creating new characters. Based on the feed backs of the participants, the characters of first stage will keep the design style and to be a reference for characters of further stages. Here figure 7.1 shows the characters of TV studio stage. They are a rookie female TV announcer who just obtained a lot

Figure 7.1: Character design of 2nd stage in progress

of fans because of her pretty look, a cunning producer who is good at flattering, a famous base ball player who is handsome and nice, a comedian who is ugly and lust for woman, an experienced TV announcer who is very strict and a guest foreigner who lives in Japan. Figure 7.2 is the 3D model of TV studio.

More players will be asked for suggestions for how to improve the recognition on the characters according to their identities and how to reduce the negative images of the characters so that they can satisfy players' acceptances and preferences better. When the game is completed, as a finally result, the characters will be unified again to ensure the consistency with the whole game. The design and developing experience can be referred in other independent video game design practice in the future.
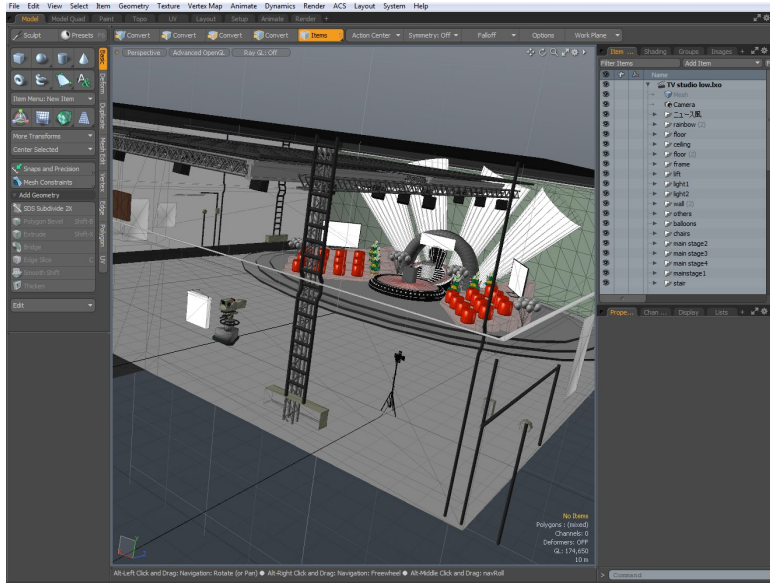
Figure 7.2: 3D interior design of TV studio in progress

7.3. Summary of Contributions

This study gave an acknowledgement of video game character design by reviewing the successes of the classic video game characters in the video game history and the trends of modern video game characters. Based on the representative cases it empirically analysed and categorised their methods into three character design managements. One of them became the principle of the character design in this study. An original video game called ODATE GAME which firstly transformed modesty culture into a game idea was presented and the practical process of designing and modelling was illustrated. The facts which affects character design were explored and discussed which is the most important for ODATE GAME. The character design made for this game and the experience of highly efficient 3D modelling process can be a case study for 3D game design in general especially for amateur independent video game developers.

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Appendix

A. Participants' answers to ODATE GAME character design questionnaire

A.1 Answer of Participant 1

Date:09/12/2014
Name:T.L
Gender:M
Age:26

1. This game is a music game with a theme of irony.

2.

0	2	8	3
0	1	5	2
4	0	5	0

3. A

4. 8

A.2 Answer of Participant 2

Date:09/12/2014
Name:C.X.W
Gender:F
Age:26

1. Tt is a music game.

0	6	3	6
0	5	3	4
6	0	7	0

2.

3. A

4. 7

A.3 Answer of Participant 3

Date:09/12/2014

Name:Y.Y.L

Gender:M

Age:26

1. It is a music game and the theme is humour.

1	2	7	2
2	1	7	0
4	0	4	0

2.

3. A

4. 4

A.4 Answer of Participant 4

Date:09/12/2014

Name:G.W

Gender:M

Age:26

1. It is a game that tells you to be modest.

5	1	9	1
4	0	7	0
7	0	6	0

2.

3. A

4. 7

A.5 Answer of Participant 5

Date:10/12/2014
Name:M.Y.H
Gender:F
Age:53

1. None.

2.
1	6	2	7
1	4	3	4
4	1	5	1

3. B

4. 6

A.6 Answer of Participant 6

Date:10/12/2014
Name:H.J.Z
Gender:M
Age:51

1. It is a music game.

2.
2	2	4	1
2	2	3	0
5	1	3	0

3. B

4. 5

A.7 Answer of Participant 7

Date:10/12/2014
Name:L.Z
Gender:F
Age:30

1. It looks like a music game and the theme is drinking party.

2.
5	3	8	1
7	2	6	1
9	0	8	0

3. B

4. 3

A.8 Answer of Participant 8

Date:10/12/2014
Name:Y.T.Z
Gender:M
Age:21

1. It is a music game about modesty.

2.
5	1	8	0
6	0	6	0
7	0	6	0

3. A

4. 7

A.9 Answer of Participant 9

Date:10/12/2014
Name:R.T

Gender:F

Age:48

1. None

2.

0	4	5	3
1	2	3	1
5	0	6	0

3. B

4. 3

A.10 Answer of Participant 10

Date:10/12/2014

Name:H.T

Gender:F

Age:52

1. None

2.

0	5	2	5
0	1	4	3
3	0	6	0

3. B

4. 6

A.11 Answer of Participant 11

Date:11/12/2014

Name:D.M

Gender:M

Age:51

1. It is a music game and its theme is to flatter people.

2.

1	2	7	2
3	1	4	1
5	0	3	0

3. A

4. 8

A.12 Answer of Participant 12

Date:11/12/2014
Name:J.Q.T
Gender:M
Age:78

1. None

2.

0	1	6	2
1	1	4	0
4	0	4	0

3. A

4. 6

A.13 Answer of Participant 13

Date:12/12/2014
Name:X.F.T
Gender:M
Age:26

1. It is a music game with a school bullying background

2.

4	1	8	1
3	0	6	0
5	0	5	0

3. A

4. 7

A.14 Answer of Participant 14

Date:12/12/2014
Name:S.C
Gender:M
Age:26

1. It is a game about jealousy.

2.
3	2	7	1
5	1	6	1
5	0	4	0

3. A

4. 9

A.15 Answer of Participant 15

Date:12/12/2014
Name:K.K.J
Gender:M
Age:25

1. It is a Japanese comic based music game.

2.
4	1	9	2
5	1	7	1
6	0	4	0

3. A

4. 7

A.16 Answer of Participant 16

Date:12/12/2014
Name:J.Q.S
Gender:M
Age:26

1. It is a music game about self defending.

2.
6	2	8	1
6	1	7	1
8	0	5	0

3. A

4. 5

A.17 Answer of Participant 17

Date:12/12/2014
Name:Q.W
Gender:F
Age:26

1. It is a Japanese humour music game.

2.
2	3	4	3
3	2	3	3
7	0	5	0

3. B

4. 4

A.18 Answer of Participant 18

Date:13/12/2014
Name:H.Y.Y

Gender:F

Age:76

1. None

2.
1	2	3	4
3	2	2	3
6	0	5	0

3. B

4. 1

A.19 Answer of Participant 19

Date:13/12/2014

Name:Z.Y.W

Gender:F

Age:9

1. This game's characters are funny.

2.
7	0	9	1
8	0	8	1
10	0	9	0

3. C

4. 1

A.20 Answer of Participant 20

Date:13/12/2014

Name:T.T.H

Gender:M

Age:15

1. This game is a music game and has a funny story.

2.

6	1	8	1
6	1	6	1
8	0	4	0

3. A

4. 5