

Enemy Character Design for Graphical Imagery Therapy (GIT) Game

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Abstract—This paper focuses on designing an enemy character for 3D fighting game environment, played by children suffering from brain tumor, as a therapy tool for healing. The survey was conducted before designing the character for getting idea about children perception of an enemy. Children aged 6-16 were asked to draw enemy characters focusing on what they think about an enemy, its shape and size of body structures. From drawings multiple features were extracted. Majority children drew character shape that has improper and long hands and feet, round shaped eyes and face, mouth with irregular edges. The methodology was devised by merging the extracted elements of the survey and adding shape of deformed blood cell. Final sketched character has tumor shape as the body, having no proper structure unlike a human. It has baggy hands and feet. Round eyes and eyebrows enhanced the feel of anger.

Index Terms—Designing, 3D, feature, enemy character.

I. INTRODUCTION

Character design is an art relies heavily on a particular subject with the combination of basic shapes and colors. Sketching is a functional tool in achieving a design. Designer's creativity, imagination with blend of the proposed theme results in a good visual representation of a final output. Every design first starts with an idea, and by successfully utilizing and combining whole range of skills with basic knowledge, helps in achieving high quality image.

The Sketch-fleshing out ideas begins with concepts of shape, line or form. Structure and anatomy of the character is very important. It includes height, width, hair color, outfit, etc. Characters are drawn in context with related objects, characters and settings. Another aspect of character design is setting character's design rules that will keep the overall look consistent. The character is designed in a way that according to the subject it communicates with the audience. The process of thinking up concepts about a character design starts with paper work, lots of thumbnails, written ideas, scratches and sketches. The target audience is usually predetermined.

Linked with Graphical imagery therapy represented by a 3D Game design, enemy character sketched sheet was the main focus in the initial stage of game development. The focused target audience was the children suffering from brain tumor. 3D game design as healing therapy tool from brain tumor, required an enemy character design, the children would fight with to gain relief. Character design also focused on the children perception of the enemy character, multiple views collected from children. Graphical representations were to be used to facilitate the guided

imagery sessions in children with brain tumors. Proposed project of Guided imagery treatment is having the focus to promote wellness and optimize the overall health besides targeting the brain tumor itself.

II. LITERATURE REVIEW

Lankoski (2003) states that a complete character design supports role-playing games. Well-defined characters considered to be an important component for a successful game. While playing player experience many aspects and interpret events from it. One of the highlighted aspects is emotion. Emotion is the process that allows to focus any problem, and to overcome that problem if necessary. Every character has an attitude that makes people act as a response. Chan et al (2009) find out that computer generated 3-dimensional graphics is a medium used as a source of entertainment and advertising. It is also stated that 3-D character design is a tool helping children to make suitable dietary choices that is further based on creating a healthy connection with food.

Lankoski & Björk (2007) states that characters are utilized in any type of existing computer media, and characters are integral in game design. While designing a character for 3D game, Physiology (gender, height, weight, age and physique), Sociology (occupation, social environment) and Psychology (standards, purpose) qualities are important for complete outlook and meaning. The design also defines proposed possible actions and functions, would be performed by the character in gaming environment. Takeuchi & Katagiri (1999) explores that Human-Computer interaction has the same social dynamics like in Human-Human interaction. The computer characters as element of the animated environment create social relationship with human.

Woods (2012) states that while designing a character there are basics for generating it. It embodies everything in the character i-e age, name, color, height, width dimensions. Its overall personality should circle around true facts the character going to accomplish. While describing it, keep in mind the personality emotional chart.

Ehow (2012) says that Concept art is a critical element for character designing essentially for video game, movie or any other application. Chan et al (2003) states that hand-drawn sketches are important in creating features of the character models which are considered to be consistent with design input. Sheridan (2009) says that character can be designed focusing on three aspects i-e passive, active and reactive. The character definition includes choices, actions, and reactions.

Gantzler (2007) says that game genre has an impact on the type of the character that is being designed, having an appropriate outlook and impression. Such aspects are taken

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into account in the early stage of the design because it derives the overall theme. Obtaining the final character look takes time, along with multiple sketches. 2D character sketch is the first step. After achieving the overall look of the character, multiple moods and poses are being sketched. Artist/ Designer then move on to color studies. The sketch is further used for 3D design of the character.

Lankoski et al (2003) explores that designing the protagonist character for computer games is different from static characters of film or literature. In gaming player's response influence the nature of the character. In return the whole characterization affects the interpretation. He says that the character in computer games is dependent on their surroundings, defining the real impact on the player.

III. THE METHOD

Sketching sheets method was used to draw enemy character for 3D game environment. The main theme behind the character sketch was keeping in mind two aspects i.e children perception of an enemy character and adding element of a shape of tumor. To get an idea about children perception survey among children age group 6-16 years was conducted. They were asked to draw enemy characters focusing on what they think about an enemy regarding the shape and size of its body structures.

IV. CHARACTER DESIGN

A. Enemy Character Design Theme

From the survey drawings multiple common features were extracted. Majority children sketched enemy shape in the way that it has:

1. Improper hands and feet
2. Hands and feet are longer in size
3. Eyes are of simple rounded shape
4. Irregular mouth with irregular edges
5. Overall face is in round shape



Fig. 1. Survey sketches

The second element of character design was adding the element of shape of tumor i.e. deformed blood cell. This element was necessary because the tumor is the main part that is to be killed by the patients while playing 3D therapy

game. By hitting the enemy character the healing process would begin.

B. Character Sketching Process

Color application is the second step in enemy designing. This portion is kept focused as to make it compatible with the graphical imagery therapy. It should be mapped with such colors that should create desire in the patient to fight against it because it is the enemy to them i.e the brain tumor.

[1] Body Structure

Enemy character is designed having tumor shape as the body of the character. To give it a look of an enemy its sides are morphed with spiked edges. Unlike human body structure this character is having no proper body parts. Circle with pointed edges is the whole body.

[2] Hands and Feet

Hands and feet of the character are having baggy look extruded from the body structure.

[3] Elements of Face

Face features including eyes, eyebrows, mouth were drawn to give an angry look.

Enemy characters are found to be in opposition with good characters. They are considered to be ugly in appearance. The sketched character implies the features of an antagonist character. This sketch is now being utilized as the base for modeling a 3D model in 3D Studio Max for game environment.

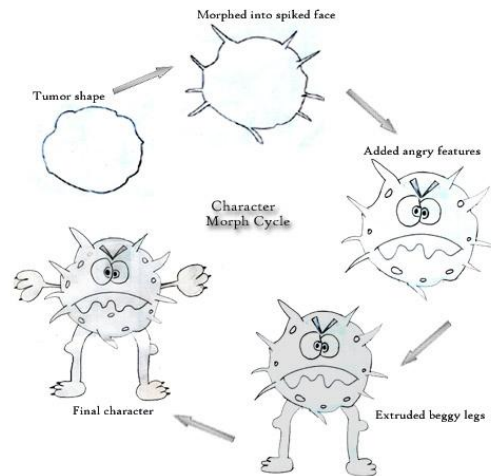


Fig. 2. Character morph cycle

V. DISCUSSION

The guided imagery enhanced the brain for stimulation through imaginations. Proposed game design entirely focused on the core element i.e the enemy character design. This character design process involved the concept of children sensitivity with the antagonist image (i.e enemy). Enemy has negative image and association. This is because target audience would fight with for the purpose of healing brain cancer. Besides this the character design was incomplete without incorporating the appearance of a deformed cell which is called "tumor". This is because the game project is about healing the cancer and the game design would have a layout of a brain in which this character will act as an enemy. Both elements were necessary in order

to obtain a character that would satisfy children imagination of the enemy, and also has the core factor of the brain tumor.

VI. CONCLUSION

Productively designing a character is achieved through the effective use of whole range of skills, as well as utilizing the basic theme behind. Concluding, the method described here offers designers to incorporate themes for game character design. it focused heavily on having a strong link between game play environment and the character design.

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REFERENCES

- [1] P. Lankoski, *Character design fundamentals for role-playing games*, 2003.
- [2] K. Chan, D. Easterly, and I. A. Thomassen, "Understanding empathy in children through 3D character design," *Authors and Digital Games Research Association (DiGRA)*, pp 1-7. 2009.
- [3] P. Lankoski and S. Björk, (2007). Character-driven game design: Characters, conflict, and gameplay," [Online]. Available: <http://www.cms.livjm.ac.uk/library/aaa-games-conferences/gdtw/2008/papers/Camera-Ready-Papers/LP9.pdf>
- [4] Y. Takeuchi and Y. Katagiri, "Social character design for animated agents," *ATR MI&C Research Laboratories Kyoto*, pp 1-6.1999.
- [5] T. Gantzler, "3DS max for games—module iii character design and animation," *FRANSON, David and THOMAS, ErikGame Character Design Complete Thomson Course Technology*, pp 1-11.2007
- [6] P. Lankoski, S. Heliö and I. Ekman., "Characters in computer games: Toward understanding interpretation and design," *Hypermedia Laboratory University of Tampere*, pp 1-12
- [7] W. Woods. How to design a main character. [Online]. Available: <http://winterwoods.hubpages.com/hub/How-to-Design-a-Main-Character>
- [8] Character design process. character design process. [Online]. Available: http://www.ehow.com/how-does_5382515_character-design-process.html#ixzz1sMo8VLUJ
- [9] B. U. Chen, Y. Ono, and T. Nishita. Character animation creation using hand-drawn sketches. [Online]. Available:<http://ntur.lib.ntu.edu.tw/bitstream/246246/84994/1/9.pdf>
- [10] S. Sheridan. Creating original characters, themes, and visual metaphors for your digital short film. *Pearson Education, Peachpit Press*. [Online]. Available: <http://www.peachpit.com/articles/article.aspx?p=174318>